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A SCALE FOR MEASURING THE RELATIVE DIFFICULTY OF HIGH-SCHOOL SUBJECTS

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Editor's note: Previous investigations indicate that different high-school subjects possess a differential predictive value. Curriculum makers have been concerned among other things with the sequence of learning experience. The author presents important data relative to the difficulty of 31 high-school subjects as taught by 363 teachers in nine different secondary schools, with a scale for measuring the difficulty of school subjects.

THE purpose of the study here reported has been to identify the subjects which deviate furthest from the norm. The measuring difficulty is relative to the amount of the deviation characteristic of each.

The term "difficulty" was defined as the sum total of a pupil's reactions or feelings about a subject with respect to the effort required, the time needed, the emotional blocking to be overcome, or to anything else that tends to prevent the attainment of what seems to him to be a satisfactory result. Difficulty defined in this manner is admittedly a subjective and personal matter. Nevertheless, it is something about which judgments of the "more" or "less" type can be made. The term "difficulty" is intended to include more than the intellectual requirements for successful work in a subject. It denotes a complex to which many other elements may also contribute. The pupil's interests, his likes and dislikes, his abilities and his aptitudes, the personality of his teacher, or the odors of the laboratory may all be a part of it. The fact that in the opinions of students, certain subjects are more difficult than others simply means that certain factors, intellectual or otherwise, are for some reason or other more numerous or more intense in some subjects than in others.

In attacking this problem a scale was constructed according to the technique used by Thurstone,[1] and modified by Remmers,[2] for preparing

[1] Thurstone, L. L., and Chave, E. J. *Measurement of Attitude Toward the Church,* Chicago, Illinois: University of Chicago Press, 1929.

[2] Remmers, H. H. "Studies in Attitudes—a Contribution to Social-Psychological Research Methods," *Studies in Higher Education,* Bulletin of Purdue University, Vol. XXXV, No. 4, December, 1934.

generalized attitude scales. It is known as the method of equal appearing intervals. The scale is in two forms, each of which consists of thirty-one descriptive statements of subject difficulty which have received their scale placement from the combined rankings of 131 judges. The statements are descriptions of different degrees of subject difficulty ranging in approximately equal intervals from the statement representing the least degree of difficulty to the one representing the greatest degree of difficulty. The first statement is, "A dumb-bell could pass this subject." The last statement is, "If my life depended on it I could not get this subject." The rest of the statements were arranged between these two extremes in the order of the degree of difficulty they were judged to express. The scale was designed to obtain difficulty ratings for the various subjects by having pupils mark one or more of the statements which seemed to them to fit best, the subjects for which difficulty ratings were desired. These statements represent "equal appearing intervals" on the scale. In this technique the actual scale value obtained by finding the medians of the judges' placement ratings may be used as the numerical index of difficulty represented by each statement, or the number of the statement may be used with equal statistical accuracy when the statements are arranged in progressive order. The number of the statement was used as the difficulty index in this study. The median of the numbers of the statements marked by a pupil as describing a subject was taken as that pupil's difficulty rating of the subject. The median of the subject difficulty ratings of all the pupils, when determined for each subject rated, provided the numerical difficulty rating for each of the thirty-one subjects treated in this study.

These numerical ratings of difficulty ranging as they do from 9.6 for Woodwork to 20.3 for Advanced Algebra constitute a difficulty scale for high-school subjects somewhat analogous to the scale of hardness of minerals.

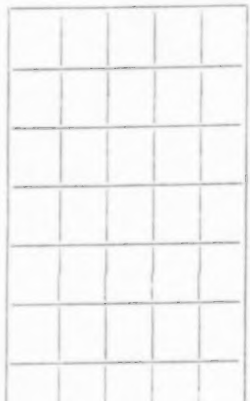
Form A of the scale with directions to students is given herewith:

> DIRECTIONS TO STUDENTS: The purpose of this paper is to find out which school subjects are *hard* and which are *easy*. You can help by marking the statements given below which *fit* certain subjects you have taken. You will be told which subjects these are. Write them in the slanting spaces at the top of the columns.
>
> Now *read* each statement *carefully*. When you come to a statement *which you think describes one* or more of the subjects being considered, put a plus sign (+) *in that subject's column to the*

left of the statement. Most students find *several statements that fit each subject.* Leave those statements unmarked which do not fit any of the subjects. Your marking will in no way affect your grades.

School Subjects				
1	2	3	4	5

1. A "dumb-bell" could pass this subject.
2. I could have passed an examination in this subject before I ever took it.
3. This subject is one of the easiest I ever took.
4. I wish all my subjects were as easy as this one.
5. This is one of my easiest subjects.
6. I give less time to this subject than any other subject I have.
7. I can always get a good grade in this subject.
8. This subject is easier than most subjects.
9. This subject requires little serious effort compared with others.
10. This subject is easy, but I have taken easier ones.
11. This subject is easier than some because it can be well illustrated.
12. This subject is slightly less difficult than average.
13. I can do fairly well in this subject.
14. This subject isn't so hard as many.
15. Among all the subjects I have ever had this would be about average.
16. Some pupils think this subject is hard. I think it is just about average in difficulty.



17. This subject would be easier if I didn't have to spend so much time on it.
18. If I worked real hard, I could get very good grades in this subject.
19. This subject is difficult to explain well enough.
20. This subject requires too much imagination for me.
21. This subject takes more thought than average.
22. If I studied this subject all the time maybe I could pass it.
23. This subject requires a great deal of concentration.
24. I can just barely see the light once in a while in this subject.
25. This subject really takes serious effort.
26. No matter how hard I work I never feel quite sure of myself in this subject.
27. This subject ranks among the most difficult.
28. This is one subject that is beyond me.
29. This subject is so hard it is no use trying.
30. It is absolutely impossible for me to understand this subject.
31. If my life depended on it I could not get this subject.

Thurstone tested his attitude scales for reliability in two ways. The first method tested the reliability of the relative placement of the scale items by the judges. Thurstone had asked 300 judges to rate a large number of items expressing attitudes towards the church on an eleven point scale, a rating of 1 being most favorable and a rating of 11 being most unfavorable. From these items he finally selected 45 which ranged from most favorable to most unfavorable in approximately equal intervals. He took only those statements for which the distribution of the judges' ratings showed an interquartile range of 3 or less. The average range was 1.67.

Using the formula:

$$\text{Av. P. E. of medians} = 1.25 \cdot \frac{\text{Av. P. E. distribution}}{\sqrt{N}},$$

he found the average P. E. of the medians of the judges' placement ratings to be 0.06. This measure of reliability he considered low enough to indicate that the relative placement of the scale statements had been sufficiently stabilized.

The scale for measuring the difficulty of high school subjects was formed from statements rated on a nine-point placement by 131 judges. Only statements for which the interquartile range of the judges' placement ratings was 2.0 or less were used. The average interquartile range was 1.31. The average P. E. of the medians determined by the formula used above was 0.07. This would indicate that the relative placement of the scale items was sufficiently reliable.

Thurstone's test for reliability of performance of his scale was derived by correlating the scores obtained when Form A and Form B of the scale were administered to the same people. Using both Form A and Form B with two different groups, he secured correlations of .84 and .89 respectively. He considered these correlations quite satisfactory. The scale presented in this study was tested for reliability of performance in the same manner. The coefficients of correlation between the difficulty ratings obtained for each of several subjects rated by the same pupils on both Form A and Form B of the scale were found. These correlations ranged from $.78 \pm .019$ to $.87 \pm .013$.

The scale was tested for validity by correlating the rank orders of the difficulty ratings of thirty-one subjects obtained by the use of the scale, with the rank orders of the difficulty of the same subjects obtained from the ratings of fifty-five high-school principals. A rank order correlation of .85 was obtained which in terms of the Pearson "r" would be equivalent to .88. These correlations are considered very satisfactory for this type of scale.

After the scale had been constructed it was administered to pupils in nine different secondary schools. Eight thousand seven hundred eighty-five pupils from thirty-one subject classes, taught by 363 teachers coöperated in this study.

The median difficulty ratings of each of the thirty-one subjects were ascertained. They are given in Table I.

TABLE I

MEDIAN DIFFICULTY RATINGS OF HIGH-SCHOOL SUBJECTS SECURED FROM THE RESPONSES OF BOYS AND GIRLS COMBINED AND THE MEDIAN I.Q.'s OF THOSE MARKING EACH SUBJECT

Subject	Rank Order of Difficulty Ratings	Median I.Q.'s of Boys and Girls Responding	Medians of Difficulty Ratings
Algebra, Advanced	1	110	20.3
Chemistry	2	111	19.7
Latin, First Year	3	111	19.6
Geometry, Plane	4	109	19.0
Latin, Second Year	5	113	18.8
Physics	6	110	17.9
French, Second Year	7.5	113	17.4
Bookkeeping, First Year	7.5	107	17.4
Spanish, Second Year	9	109	17.2
Geometry, Solid	10	117	16.7
French, First Year	11.5	112	16.5
Spanish, First Year	11.5	111	16.5
Shorthand, First Year	13	111	16.4
Algebra, First Year	15	109	15.8
Economics	15	104	15.8
Shorthand, Second Year	15	110	15.8
Civics	17	106	15.7
American History	18	108	14.9
English, Fourth Year	19	110	14.8
English, Second Year	20	105	14.2
Modern History	21	104	14.0
Biology	22	106	13.9
English, Third Year	23	108	13.7
English, First Year	24	106	13.1
Sociology	25.5	107	12.6
Foods	25.5	103	12.6
Mechanical Drawing	27	102	12.2
Typing, First Year	28	104	11.5
Typing, Second Year	29	105	11.0
Clothing	30	102	10.0
Woodwork	31	103	9.6

CONCLUSION

1. This study has shown that it is feasible to measure the relative difficulty of high-school subjects and to express these difficulties in terms of numerical ratings.
2. A scale for doing this has been developed. It has been tested for reliability and validity with satisfactory results.
3. Numerical difficulty ratings for 31 subjects have been ascertained.

ON ART APPRECIATION OF CHILDREN: III
TEXTILE PATTERN PREFERENCE STUDY

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Editor's note: This is the third of a series of important studies in the field of art appreciation. In this study the author presents data on the textile pattern preferences of school children, ages 6 to 15.

INTRODUCTION

THIS is the third of a series of art appreciation studies, and part of an investigation into the creative and appreciative art abilities of children. As in the previous studies[2] the subjects of this investigation were children who come to the Saturday classes of The Cleveland Museum of Art. A small additional number of children was taken from Cleveland schools.[3] As before, we have to thank the Museum for the excellent material taken from its Library and other collections (large-sized facsimiles and original textiles) which made it possible to use a great variety of high quality materials.[4]

THE PROBLEM

In our previous investigations, children's subject and portrait preferences were studied with the help of a variety of reproductions of paintings, and the results evaluated by age levels.[5] In the present investigation the problem was to study the preferences of children of all age levels from 6-15 (some children over 15) for textile patterns which were shown as originals or facsimiles[6] and to note their reactions. Are children par-

[1] This work was carried out under a grant of the General Education Board of New York, to the Educational Department of the Cleveland Museum of Art. I am greatly indebted to Dr. Munro, Curator of Education of the Cleveland Museum of Art, for his interest and valuable discussions.

[2] Lark-Horovitz, Betty. "On Art Appreciation of Children, I," *Journal of Educational Research*, XXI (October, 1937), pp. 118-137; "On Art Appreciation of Children, II," *Journal of Educational Research*, XXXI (April, 1938), pp. 572-598.

[3] I wish to thank here Miss Agnes D. Loudon, Principal of Oxford Elementary School, Cleveland, Ohio, for her help and coöperation, as well as Mr. Moles and Miss Lulu Diehl of Thomas Jefferson Junior High School.

[4] I also wish to thank the teaching staff of the Cleveland Museum of Art warmly for their kindness and helpful assistance in carrying out these experiments as well as those of the previous studies: "On Art Appreciation of Children."

[5] See footnote 2.

[6] The facsimilies are of such a quality that a large number of children failed to note that they were not original textiles.

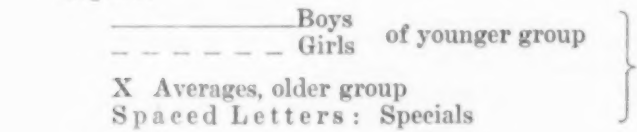
tial to certain patterns and, if so, is it different for different age levels? Is such partiality due to the kind of pattern? Or to its colors? Or to the texture and kind of material the pattern is made of? Do specially gifted children react in the same way as the average children?

THE EXPERIMENT

The experiment was carried out with 521 children, ages 6-15 and a group of specially gifted children, 11-15 years old.[7] In both groups, there were a few children older than fifteen. The average group contained 259 boys and 261 girls, whereas the special group ("Specials") included 26 boys and 17 girls.

As in previous studies, there was a preliminary exhibit of original textiles and facsimiles of textiles comprising 127 pieces, arranged in 26 groups. These groups were organized according to similarity of either arrangement or color combinations, or type of design and motives. Modern patterns were separated from those of the past. In this way every group contained similarities of type and dissimilarities in details and execution. The patterns were numbered, but there was no information as to artist, time of manufacture, nationality, etc. The choice of one—or two—preferred patterns from one group in the preliminaries assured the representation of each type in the final exhibit, yet eliminated repetitions of similar types. Nineteen boys and twenty girls, 6-10 years old, 21 boys and 24 girls, 11-15 years old, as well as 15 special boys and 7 special girls were used in the preliminaries. First and second choices were combined in calculating the patterns preferred by a majority of either boys or girls or both, of the younger and the older groups. These made up the final exhibit, and secured an unbiased choice.[8]

Legend:



[7] See footnote 4, *Journal of Educational Research*, XXXI (April, 1938), p. 572. The group of Specials is composed of a majority of noticeably superior children as regards drawing ability.

[8] Examples of exhibit groups from the preliminary exhibit.

Group K[9]

1. Linen warp with silk and gold thread. Red ground. Symmetrical, even, horizontal rows of paired lions and paired small birds. Probably German, XIII century. Lessing 82.
2. Silk. Yellow ground. Horizontal rows of stylized symmetrical pairs of ducks in black and red. Stylized tree between them. Near East. Early Middle Age. Lessing 24.
3. Silk, dark-red ground, pattern in black with some white, alternating horizontal rows of (a) fantastic lion-headed twin birds and (b) symmetrical pairs of birds whose tails form a palmetto. Spanish, XII century. Lessing 48.
4. Silk. Brownish-red ground, double circles with double eagles, lions in their claws. Black with golden eyes, claws and beaks. Byzantine, XII century. Lessing 77.
5. Silk. Yellow ground, large circles with double eagles, deers in their claws and on their wings.

X The circles have bands with animal friezes. Red, green, lavender, and white. Oriental, XI century, Lessing 41.

The final exhibit consisted of 39 patterns.

LIST OF PATTERNS

1. Green ground with yellow and lighter green, silk print; abstractions representing steel towers. "Sky Ride" designed by W. T. Teague, Marshall Field. American.
2. Lavender-blue ground with gray-topped white lines, spotted with dark gray, abstraction of a Constellation in Rotation. Silk print. "Trade Mark" designed by W. T. Teague. Marshall Field. American.
3. Dark old rose ground with shading up to white in same color, bands and zigzag lines representing toboggans. "Patterns on walls" designed by W. T. Teague. Marshall Field. American.
4. Flower pattern on blue ground in yellows, reds, browns. Rayon print. American. Adapted from van Gogh painting.
5. Silk print on black ground, motifs from fairy tales in multicolor, arranged on vertical axes, alternating with stylized flowers as axes. "Marionette Prints" by Tony Sarg. American.
6. Silk print; white, brown, gray, natural pongee color; geometric forms with horizontal series of rabbits, pelicans, fishes, owls, crabs. Japanese.

[9] All patterns Group K were taken from: "Die Gewebe-Sammlung des Königlichen Kunstgewerbe-Museums" imamtlichen Auftrag herausg. von Julius Lessing. 11 Portfolios, Berlin. Wasmuth, 1913.

Group M[10]

1. Cotton hand-painted on unbleached ground. Arabesques of red and bluish-gray branches and flowers and various birds. Indian, XVIII century. Plate IX, Baker.
2. Cotton, hand-painted on unbleached ground, in reddish brown, blues, greens; tree stylized with arabesque branches and flowers. Indian, XVII-XVIII century. Plate IV, Baker.
3. Cotton, hand-painted on unbleached ground, with regular cross-hatched ground pattern in gold, with flowers and feathered leaves, many colored. Persian, XVII century. Plate XXIV, Baker.
4. Cotton, hand-painted on unbleached ground with regular cross-hatched ground pattern in gold, with flowers and feathered leaves, many-colored. Persian, XVII century. Plate, XXIV, Baker.
5. Cotton, hand-painted on unbleached ground. Winding stems with stylized feathered leaves in gray and rust-red rosettes, and various birds. Indian, XVII century. Plate XI, Baker.
6. Hand-painted silk on lemon-yellow ground; large flowers arabesque in green, lavender and pink. X Chinese, XVIII century. Plate 14, Baker.
7. Brocaded silk; gray ground with black elephant heads holding in their rolled up trunks red-stemmed, silver-leafed branches. Regular, horizontal, alternating arrangement. French. Made by Biancini Ferier.
8. Rayon and cotton, disks overlapping each other, partly dotted rectangles and squares in oranges and browns arranged in geometrical pattern on dark beige ground. French.
9. Brown with red threads. Geometric pattern irregularly arranged, made of stars, loops, ribbons. Rayon damask. French.
10. Silk print, Japanese, diagonal straight lined geometric pattern, dark green and brown plaid, spotted with pieces of Japanese armor. Natural pongee and dark green ground. Motifs in browns, blues and whites. Modern.
11. Silk, purple ground with yellow and white alternating rows of kneeling and floating angels (yellow with white faces and hands), holding crosses; stars sprinkled all over. Italian, end of XIV century. Lessing 183.
12. Silk brocade, green ground with motifs of three golden figures, representing the goddess of love with two youths kneeling on each side; faces and hands white. Italian, XIV century. Lessing 181.
13. Silk brocade on red ground. Pattern gold, black and white. Heraldic design in regular, vertical and horizontal rows. Emblem with four fields, castle and lion. Spanish, XV century. Lessing 123.
14. Silk brocade, blue ground, hexagonal fields in each of which are a

[10] All patterns in Group M were taken from: Baker, Walter D. *"Batik and Other Pattern Dyeing."* Chicago: Atkinson, Mentzer and Co., 1920.

pair of kneeling deers with a crown around their necks, symbolic sky with clouds and two eagles. Pattern in white, gold threads (deer), yellow and some green. Italian, XV century. Lessing 189.

15. Silk brocade; brick red ground, circles in regular arrangement in yellow and green, alternating with yellow and blue, and tied by rosettes. Inside the circles a pair of griffins facing each other. Sassanidic-Arabic, X century. Lessing 76.
16. Silk. Yellow ground, large circles with double eagles, deers in their claws and on their wings. The circles are made of bands with animal friezes. Red, green, lavender and white. Oriental, XI century. Lessing 41.
17. Silk velvet. Ground light green. Slanting rows of interlocking branches and leaves in dark green; and gold threaded pointed leaves and rosettes. Venice, XV century. Lessing, 223.
18. Velvet brocade on white ground. Alternating rows of rosettes in red, green, blue, and gold threads. Italian XV century. Lessing 200.
19. Hand-painted silk on lemon yellow ground. Spiral green branch with green, reddish edged leaves, arrangement on a central axis. At the end of the twigs large stylized carnations, pink and bluish, large stylized poppies in lavender and rose, and small blossoms of stylized plums in rust, pink and sky-blue. Chinese XVIII century. Plate 14. Baker.
20. Silk brocade on blue ground, gold arabesque and light blue arabesques, forming oval fields with Arabic palmettos in the center. Probably Persian XV century. Lessing 106.
21. Silk velvet, wine red ground, large light green leaves in even rows with blue and white pomegranate centers. Italian, XV century. Lessing 211.
22. Silk, violet ground. White lace bands winding vertically, flower bouquets, many colored. French, XVIII century. Lessing 300.
23. Silk velvet on red ground; yellow, white and black net pattern with a flower in each square. German, XVIII century. Lessing 313.
24. Alternating groups of trees on golden ground, yellowish green and bluish green. Modern Japanese textile design.
25. Silk velvet, on yellow ground, large red S-shaped forms with thistle blossoms. Italian XVI century. Lessing 285.
26. "Kanto Nishiki." Red ground with horizontal wavy lines, with candlestick like insertions in greenish and yellow-brown. Japanese 115.
27. Brocade with regularly alternating groups of storks in white, gold, and red on dark purple-blue ground. "Grues." Plate 13, Etoffes japonaises.
28. Brocade, greenish blue ground with white outlines, cloud motifs; horizontal rows of cranes in different postures, gold, white and red. dark purple tails. "Grues au vol." Plate 22, Etoffes japonaises.
29. Silk; dark purple ground, alternating bow motifs, topped by

palmetto, leaves and blossoms. Many colored with orange dominating. Soieries Marocaines, Plate 33.

30. Silk; wine red ground, lengthy diamond shaped rows with stylized leaves and flowers, white, green, yellow, light blue. Soieries Marocaines, Plate 31.
31. Silk; red ground, wavy vertical lines made of yellow leaves, leaf ornament in between, many colored. Soieries Marocaines, Plate 45.
32. White linen, red print, alternating motifs of city places, printers with their press, weavers, etc. French, Clouzot, Jouy, Plate 20.
33. Open diagonal basket weave pattern on biege ground with black and brown. Henri Clouzot, Tissus Nègres, Plate 36.
34. Design for Navajo weaving, dark red ground, diamond shapes, continuous pattern, diamond border of white and black steps. Insertions in green, black, red crosses. Connelly, Plate 12.
35. White linen, large flowered arabesques in various colors. French, Clouzot, Jouy, 1760-1820, Plate 11.
36. White linen, flowered arabesques in delicate black and white. French, Clouzot, Jouy, Plate 8.
37. Horizontal striped pattern with five petal blossoms in different, subdued colors. Imperial Museum, Tokyo, Plate 56.
38. Green and dark blue stripes with rosettes crossed by various geometric forms. Imperial Museum, Tokyo, Plate 16.
39. Silk, red ground, large circles, bordered by braided band and connected by rosettes. In the center of each circle is an elephant with saddle in black, white and yellow decorations. Byzantine-Sassanidic, IX century, Lessing 31.[11]

[11] Patterns 1, 2, 3, 4, 5, 7, 8, 9 from the Educational Lending Collection of The Cleveland Museum of Art.

Patterns 6 and 10 lent by John S. Sills; colored photographs of these two patterns in the files of the Psychology Staff of the Educational Department of The Cleveland Museum of Art.

Patterns 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 25, 39 from: Julius Lessing, Die Gewebe-Sammlung des königlichen Kunstgewerbemuseums; 11 Portfolios. Berlin: Wasmuth, 1913 (k. Museen, Berlin).

Pattern 19 from: Baker, Walter D. *Batik and Other Pattern Dyeing.* Chicago: Atkinson, Mentzer, and Co., 1920.

Pattern 24 from: Collection of drawings used in modern Japanese textiles, The Library of The Cleveland Museum of Art.

Patterns 26, 37, 38 from: Tokyo-Imperial Museum. Gomotsu jodia senshokumon. Sixth to Eighth c. A.D. Published by Tokyo Imperial Household Museum. Tokyo: Shimbi Shoin, 1927-30.

Patterns 27, 28 from: Maurice Pillard Verneuil, *Etoffes japonaises tissées et brochées.* Paris: Librairie centrale des beaux arts, 1920.

Patterns 29, 30, 31 from: Lucien Vogel, *Soieries Marocaines, les ceintures de Fez.* 50 planches en couleurs, introduction par Lucien Vogel. Paris: A. Levy, 1921.

Patterns 32, 35, 36 from: Henri Clouzot, *Les plus belles toiles imprimées de la manufacture de Jouy,* 1760-1820. Paris: Albert Lévy, 1934.

Pattern 33 from: Henri Clouzot, *Tissus Nègres,* Libraire des arts décoratifs, A. Calavas, Paris.

Pattern 34 from: Ruth Connely, Twelve examples of Navajo weavings from drawings cut on linoleum blocks by R. Connely. Santa Fe, New Mexico, 1935.

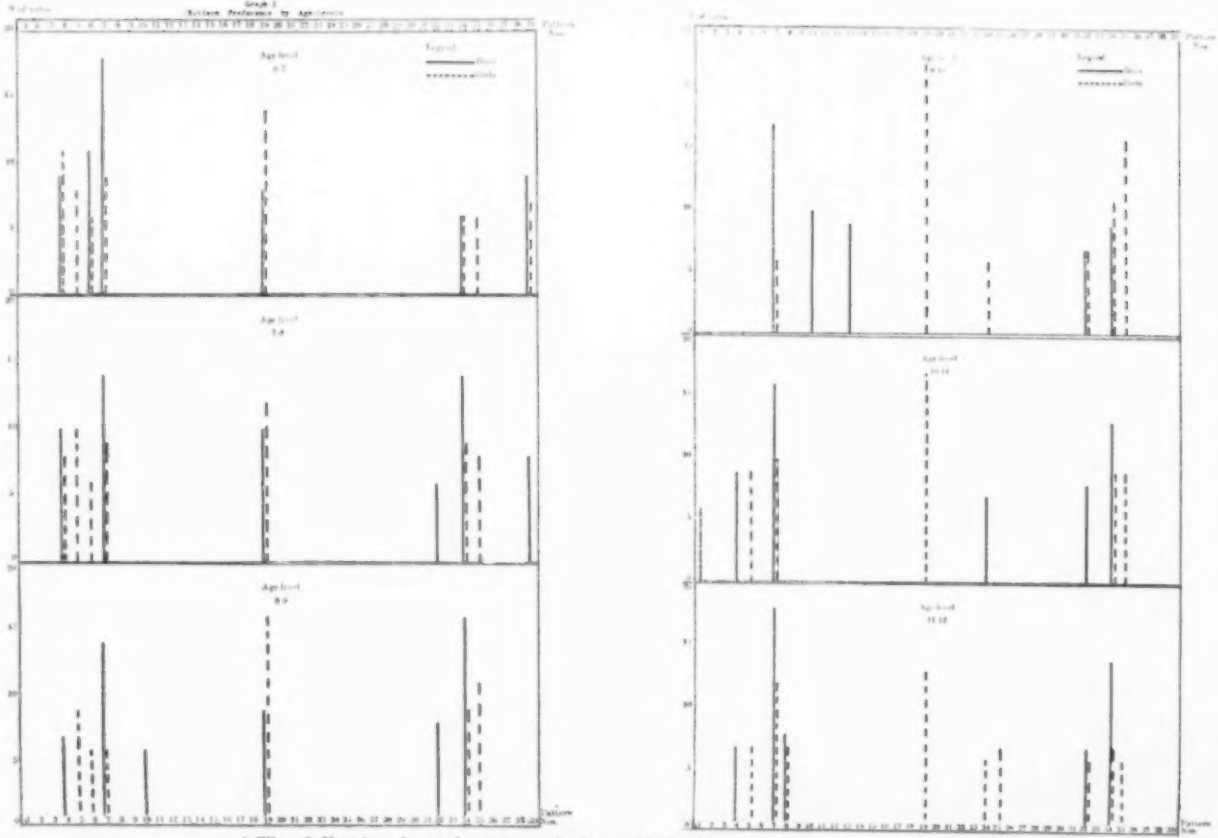
It is to be noted that eight patterns were modern-Occidental (Numbers 1, 2, 3, 4, 5, 7, 8, 9) and three were modern-Oriental (Numbers 6, 10, 24). The others were historical and included thirteen Occidental patterns (Numbers 11, 12, 13, 14, 17, 18, 21, 22, 23, 25, 32, 35, 36), ten Oriental patterns (Numbers 15, 16, 19, 20, 26, 27, 28, 37, 38, 39), one American Indian (No. 34), one African Negro (No. 33), and three patterns from Morocco (Nos. 29, 30, 31). Eleven patterns were of an abstract, geometrical content, the others represented stylized motifs of some kind of objects.

The patterns were mounted in passe-partout and were hung so that they were equally visible. The hanging arrangement of all the patterns was changed with each group, so as to be sure that seeing a pattern first instead of last, or certain combinations of placement, would not influence the choice. Small groups of children viewed the exhibit and answered the following questionnaire:

1. Why do you like No.....best? Explain as well as you can. Look at the pattern you like best and answer the following questions about it:
2. Do you like this pattern best
   a. because it shows people?
   b. because it shows animals?
   c. because it shows flowers?
3. Do you like this pattern best
   a. because it is only a regular pattern of line (geometric)?
   b. because of the arrangement of the parts?
   c. because the parts in the pattern are large sized?
   d. because the parts in the pattern are small sized?
   e. because of its background?
4. Do you like this pattern best because of its colors?
   a. because they are bright and clear?
   b. because they are delicate and subdued?
   c. because it has many colors?
   d. because it has one color you like best?
   e. because it has two or three very different (contrasting) colors?
5. Do you like this pattern because of the material (silk, velvet, linen, etc.)?
6. Do you like it because of its texture (weaving, the way the threads are put together)?

GRAPH I *

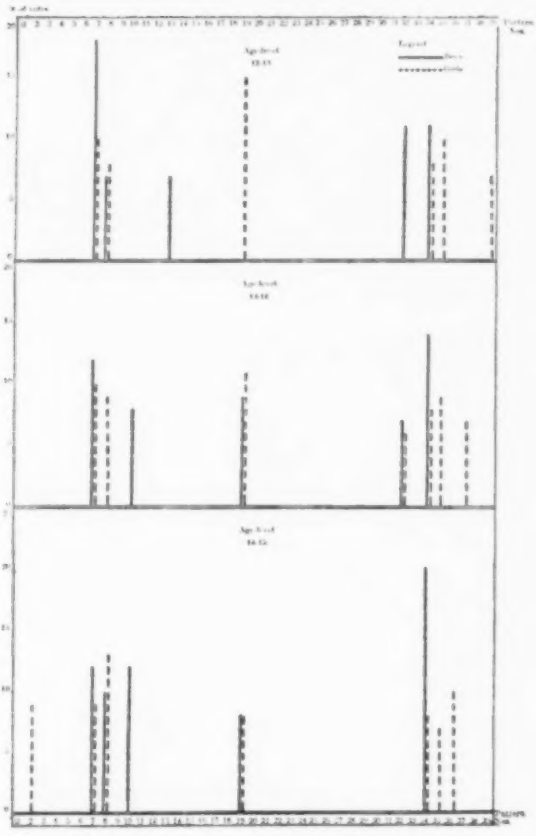
PATTERN PREFERENCE BY AGE-LEVELS



* The following legends are used throughout all Graphs:

. . . Boys
. . . Girls
. . . Special Boys
. . . Special Girls

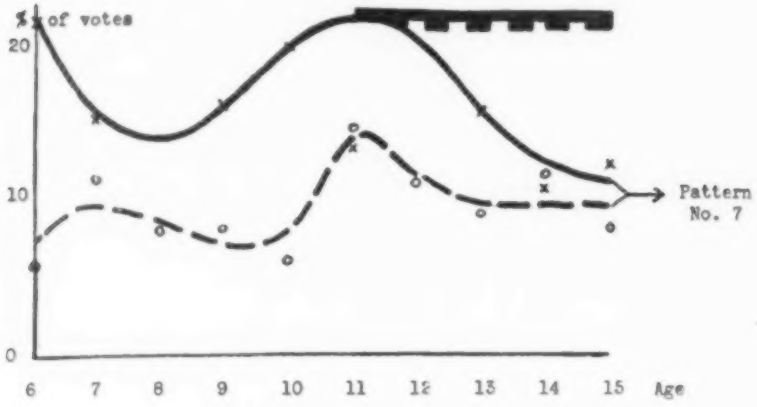
GRAPH I—(CONTINUED)



7. Do you like this pattern because you would like to use it?
   a. for a dress, coat, tie, or other clothing?
      1) modern?
      2) historic costume? stage costume?
      3) others?
   b. for hangings?
      for what kind of room?
   c. for floor-covering?
   d. for what else?

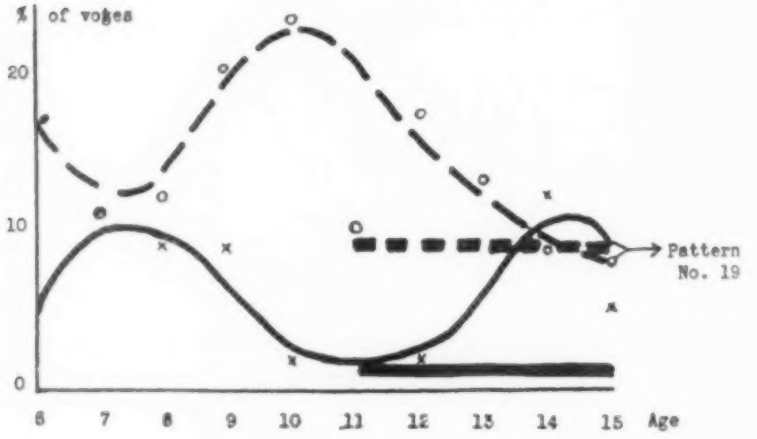
GRAPH Ia

PREFERENCE OF PATTERN NO. 7 (ELEPHANT HEADS) THROUGH AGE LEVELS



GRAPH Ib

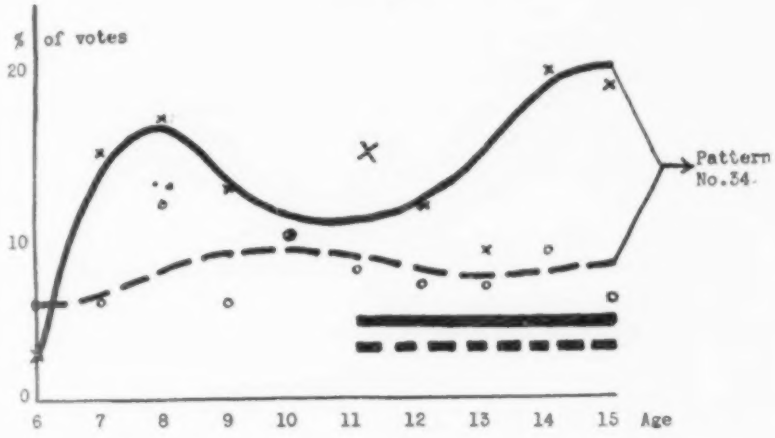
PREFERENCE OF PATTERN NO. 19 (STYLIZED FLOWERS ON LEMON YELLOW BACKGROUND) THROUGH ALL AGE LEVELS



8. If you want to use this pattern in your house (or any other place) would you use it:
   a. in a modernistic room?
   b. in what kind of room?
9. Would you like to design or weave a pattern like this one?

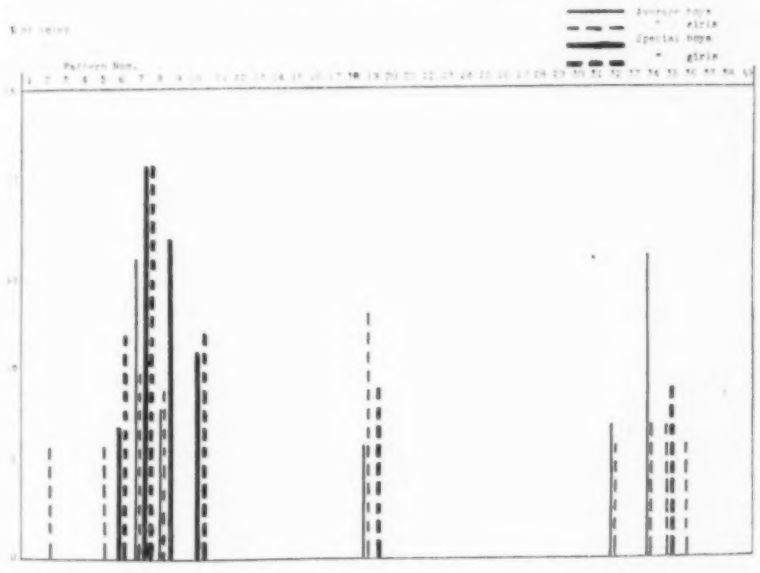
GRAPH Ic

PREFERENCE OF PATTERN NO. 34 (AMERICAN-INDIAN, GEOMETRICAL) THROUGH ALL AGE LEVELS



GRAPH II

COMPARISON OF PATTERN PREFERENCE BETWEEN THE AVERAGE AND SPECIAL GROUPS



Is designing and weaving of patterns a thing you especially like to do?

10. Would you like to change anything in this pattern? What?
11. Have you a pattern like any of these at home? Which one? Write No.....

The answers of children under ten were taken orally and recorded as they were given. Children over twelve proceeded alone. The origin of the patterns was not disclosed.

RESULTS

A. Pattern Preference.—As in the previous studies, there is a distinct preference for a few patterns. Pattern 7 (Elephant heads) is a preferred pattern throughout all age levels, including the Specials. Patterns 19 (Chinese floral) and 34 (Indian) are preferred throughout nearly all age levels, but not by the Specials. Pattern 2 is preferred by girls of 15; Pattern 4 has a certain preference at the ages of 6, 7, 8, and 11; Pattern 5 at the ages 8 and 11 by girls only; Pattern 6 at the age of 6 mainly by boys and by Specials; Pattern 8 at the ages 12, 14, 15 and by Specials; Pattern 10, by boys of 9 and 14, and by Specials; Pattern 32 by boys of 13; Pattern 35 by girls of 7, 9, 10; Pattern 36 by girls of 15 and Pattern 39 by 6 and 7 year olds.

Computations were made by combining first and second choices. Preferences per combined age levels are shown in Graph I.

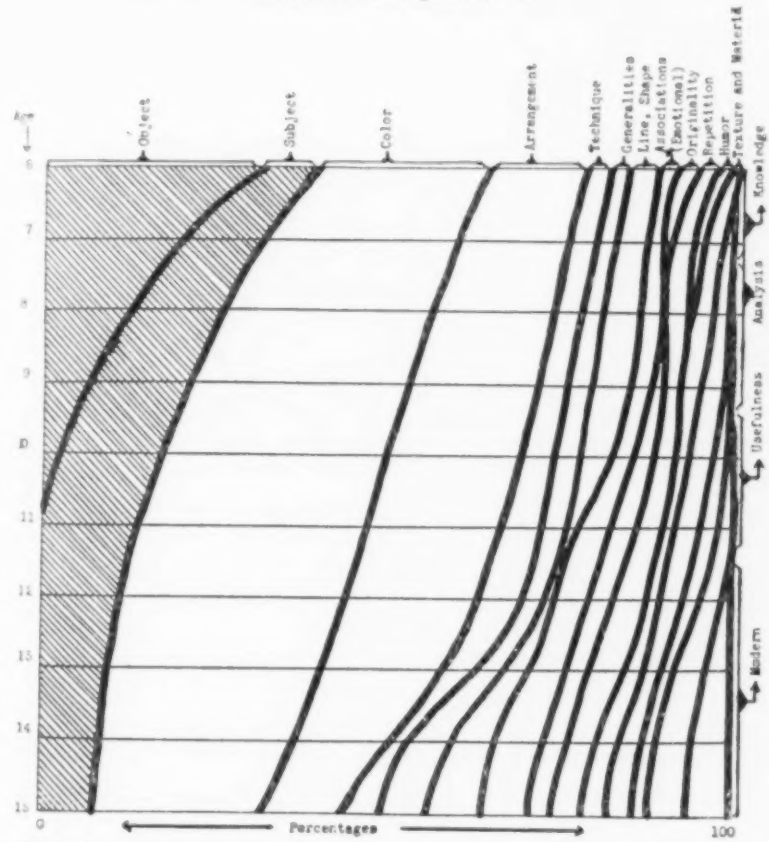
Patterns 7 and 19 which are preferred throughout all age levels, or nearly so, represent: No. 7—Animals, (Elephants' heads) and No. 19—Flowers. No. 34 (Indian) may be described as a geometrical pattern. Patterns 4, 5, 6, 10, 32, 35, 36, 39, all embody stylized flowers or people, or animal motifs. No. 8 is the only geometrical pattern other than the Indian one (34), attracting a mild preference by older age levels and by Specials. Thus, entirely abstract patterns—with the exception of the American-Indian one (No. 34) and No. 8—such as 3, 9, 20, 26, 33, 38 meet with no interest whatsoever.

B. Answers to Questionnaire.—Question 1 of the Questionnaire: "Why do you like . . . best? Explain as well as you can," which calls for a descriptive answer in the child's own wording is classified according to the reasons given for the preference, and the following categories were derived (generally speaking in order of importance): 1. object rep-

resented in pattern,[12] 2. subject of pattern,[13] 3. color, 4. arrangement and design, 5. technique, 6. general reasons such as "pretty," "interesting," "nice," 7. line, shape, and size of motifs, 8. associations and emotional reactions, 9. originality, difference from others, 10. repetition in design, 11. material and texture, 12. familiarity with the kind of pattern, knowledge, 13. curiosity, leading to analysis of the pattern, 14. usefulness, 15. modernistic aspect of pattern.

GRAPH III

DIFFERENT CATEGORIES OF REASONS FOR PREFERENCE AS RELATED TO QUESTION 1



[12] "Object represented in pattern" means preference of pattern, because it contains favorite objects of the child, objects in which he is interested wherever he meets them.

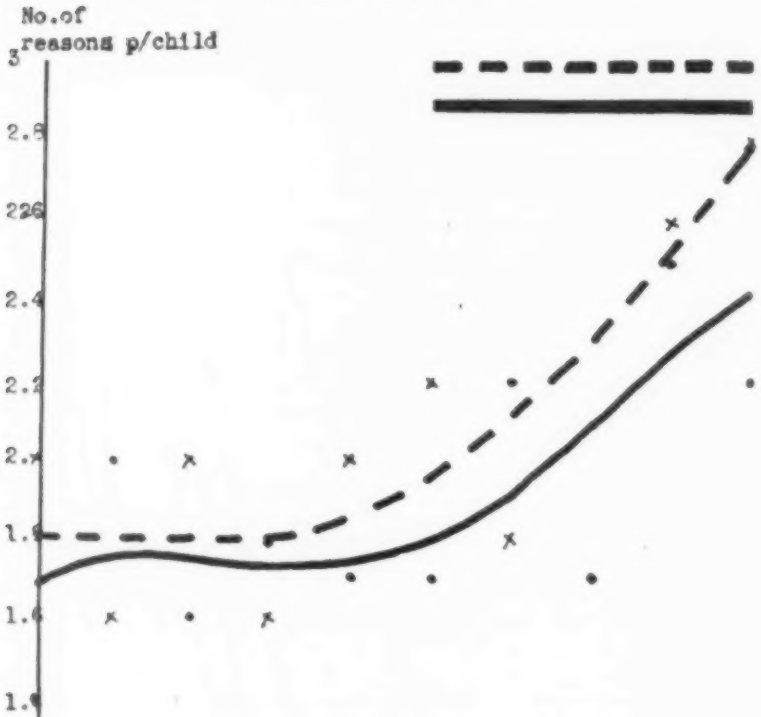
[13] "Subject of pattern" means preference of content represented in the pattern or as a pattern.

Graph III gives the classified answer to question 1.

It is evident from Graph III that (especially at the age of 6 and 7) subject and object combined determine the strongest preference.[14] Next,

GRAPH IIIa

NUMBER OF REASONS PER CHILD THROUGH ALL AGE LEVELS AS RELATED TO QUESTION 1



[14] D. W., Pattern No. 10: " . . . arrows, knives, and all that . . . "

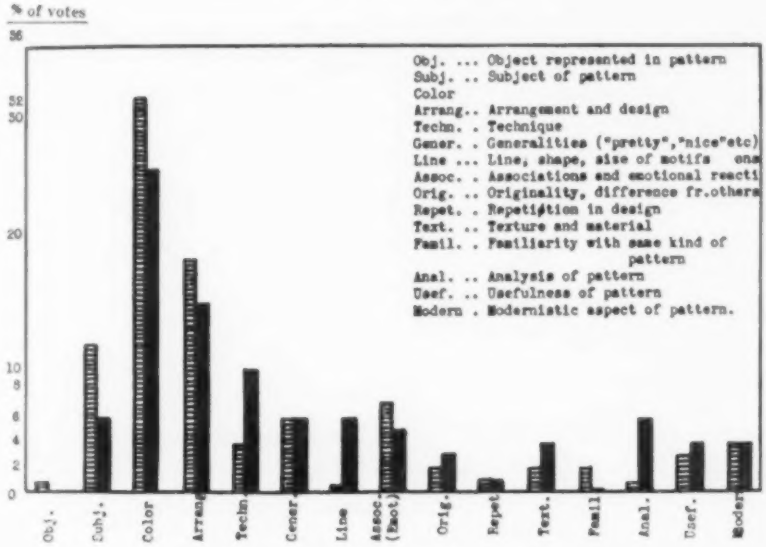
J. Z., Pattern No. 6: " . . . because of those little brown rabbits . . . those round lines are like little hills, and then those birds flying across . . . "

C. G., Pattern No. 39: " . . . because of the elephant. He has a large head and long fingernails."

H., Pattern No. 34: " . . . because I go to Church so much and like the crosses."

GRAPH IV

DIFFERENT CATEGORIES OF REASONS FOR PREFERENCE AS RELATED TO QUESTION 1. COMPARISON OF AVERAGES AND SPECIALS



follow color[15] and arrangement.[16] It is further noticeable that the variety of reasons is augmented steadily with increasing age. Color takes first place next to subject and arrangement, and these three combined cover about 60 percent of the reasons at older age levels, whereas they cover around 85 percent at younger age levels. This variety of reasons is much greater with Specials (See Graph IV) whose interests other than subject, color, and arrangement reach 69 percent as compared to 38 percent of the 11-16 years old averages. Graph IIIa, on the other hand, shows that the number of reasons given by each child increases with age and is strongly in ascendance from the age of 13 on. Specials give the largest number of reasons.

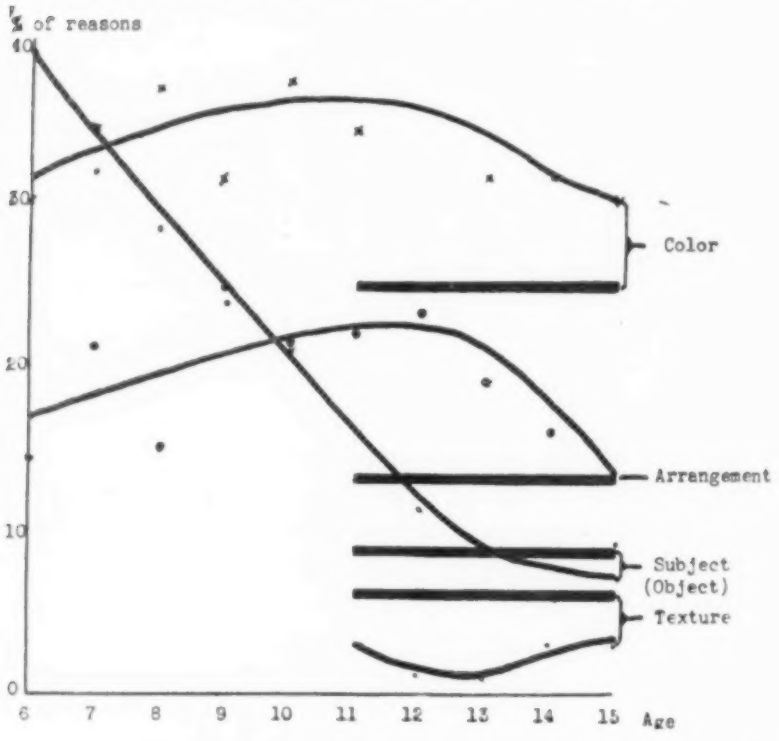
Some of the various reasons given for preference are most illuminat-

[15] A. H., "... it has one of my best colors on it."
D. S., "... interesting, attractive color."
M. R., "... repeats colors."

[16] D. S., "Regular, symbolic formation ... restful to the eye because of curves."
M. E. R., "... spaces filled evenly."

GRAPH V

COMPARISON OF SUBJECT- (OBJECT-), COLOR-, ARRANGEMENT-, (ALSO TEXTURE-MATERIAL-) INTEREST THROUGH ALL AGE LEVELS



ing and are classified under associations and emotional reactions,[17] familiarity with the kind of pattern,[18] or analysis given of the preferred pattern.[19]

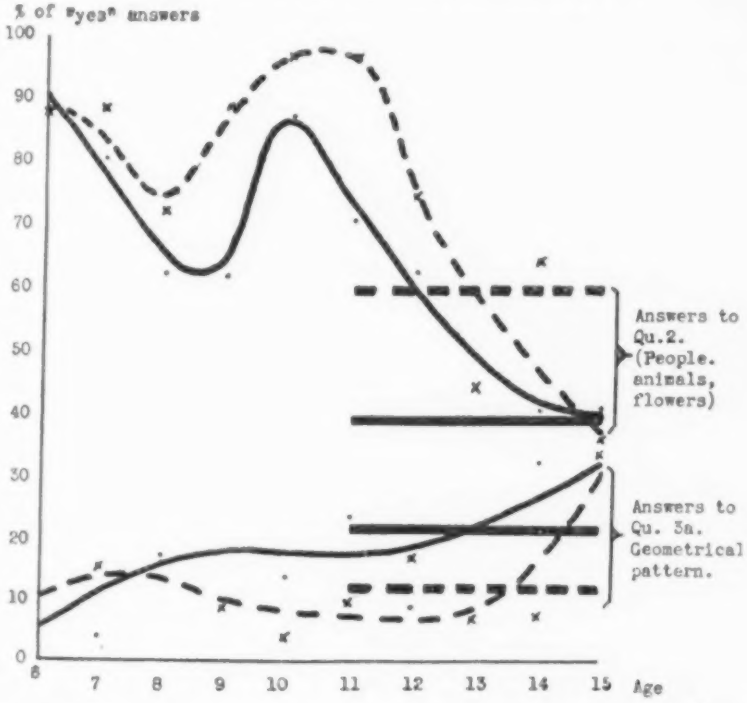
[17] J. F., Pattern No. 24: "It gives you a cool feeling."
E. G., Footnote 12.
R. H., Pattern No. 5: ". . . more suited to young people."
B. M., Pattern No. 2: "It is quiet and looking at it, is restful and easy."
[18] F. G., Pattern No. 10: ". . . because it has pre-historic accent to it."
A. M., Pattern No. 34: "It looks like an Indian pattern, and Indians make beautiful things."
A. G., Pattern No. 34: "Last year we studied Indians, I like Indian Patterns."
P. P., ". . . because I like American things."
[19] Boy, Special, 12 years old, Pattern No. 6: ". . . animals modernistically treated and still look real. The repeat is not monotonous. The small, careful drawn figures help to balance the larger areas."
Boy, Special, 15 years old, Pattern No. 24: ". . . I like No. 24 best because of the variety in the colors and the grouping of the sprays of leaves which is contrasted

The object-subject interest in patterns shows a steady decline from age level to age level while interest in both color and arrangement and interest are comparatively constant. Graph V illustrates these points. Yet Pattern No. 32 retains interest until age 14 (mostly boys) decidedly because of the subject.

The strength of subject interest in a pattern as contrasted to appreciation of abstract (and geometric) patterns shows very clearly in Graph VI.

GRAPH VI

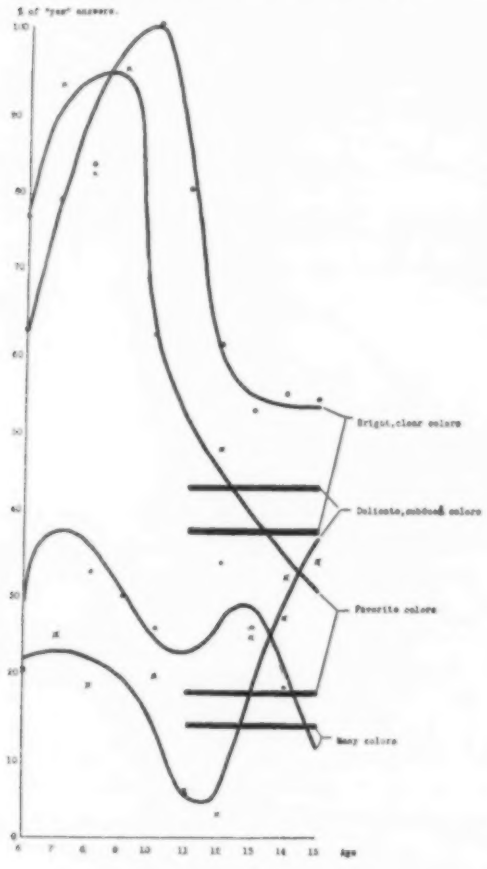
COMPARISON OF ANSWERS TO QUESTION 2 (PEOPLE, ANIMALS, FLOWERS) WITH ANSWERS TO QUESTION 3a (GEOMETRICAL)



by the repeated shapes of those leaves. The background, being motley, shows up the irregularity to even greater prominence, but the slicing up of the picture into squares makes another contrast in design. Identical tints of yellow and different shades of green are sprinkles around without being monotonous, because the colors contrast effectively. As for the irregularity of design I just saw that it was an illusion. Upon careful examination you can see the invisible lines in the grouping of the leaves forming diagonals through the printed squares and with each of a repeated square shape."

GRAPH VII

ANSWERS TO QUESTION 4: DO YOU LIKE THIS PATTERN BEST BECAUSE OF ITS COLORS?



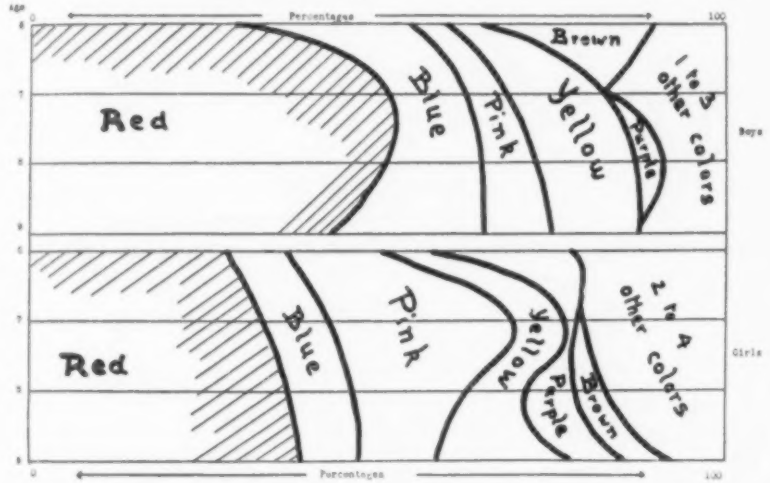
Although the subject interest declines rather rapidly after the age of ten and although the interest in abstract patterning rises steadily from the age of twelve, yet interest in abstract patterns never reaches even the lowest level of subject interest.

The interest in material and texture is comparatively low. Compared to Averages, Specials pay twice as much attention to it. The same may be said about the importance of technique and of originality of a pattern, where again Specials are twice as much aware of these qualities than Averages. Interest because of familiarity with the pattern seems to be

small with younger children, becomes somewhat more prominent with the older groups[20] and is non-existent with Specials. These results (as derived from free answers to question 1) differ quantitatively from results derived from question 11, which distinctly shows that there is a rapid increase of influence of familiarity with the patterns upon the choice of pattern and that this influence reaches a peak at the age of 13

GRAPH VIII

FAVORITE COLORS AT THE AGES 6 TO 9
TOP: BOYS, BOTTOM: GIRLS



(see Graph XII) and decreases from then on. Specials do not seem to entirely escape this influence, according to answers given to question 11, yet a negligible number of Specials prefers Pattern No. 34 (less than 5 percent), the pattern which seemed to have been chosen especially for reasons of familiarity. As for the desire to give a descriptive analysis of the pattern, only ½ percent of the Averages and none of the younger group give evidence of it, while 5 percent of the Specials do so, which means that the trend towards analysis is much greater in Specials than in Averages.

As regards preference because of the color of the pattern, according to Graph VII, the preference for bright colors, for many colors, and for favorite colors is in ascendance up to the ages 10-12. Favoritism in colors declines sharply at the age of nine after which only a few answers were

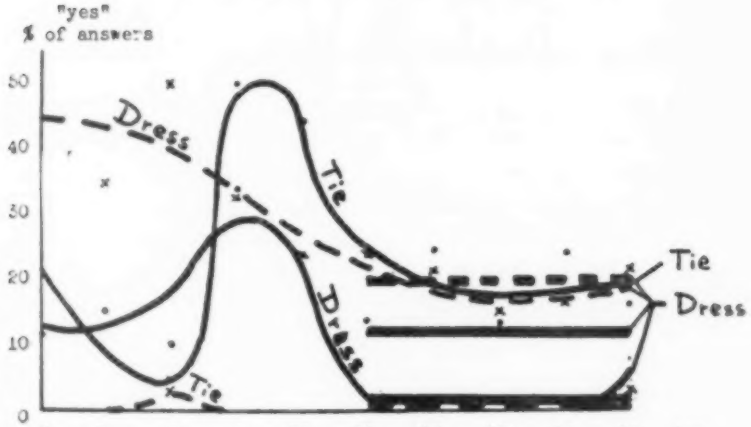
[20] See Footnote 18.

given mentioning a favorite color. Graph VIII gives the favorite colors up to age 9. Besides the accentuated liking for red, with both boys and girls, the preference for blue by boys and for purple by girls is noticeable. From the age of 12 on, there is a decrease of interest in bright colors and mounting interest in delicate and subdued colors. There is a sporadic preference for No. 36 at later age levels, which is a delicate black and white pattern.[21]

Question 7: "Do you like this pattern because you would like to use it?" and Question 8: "If you want to use this pattern in your home, would you use it in a modernistic room," deal entirely with the possible uses of the preferred patterns. Answers to question 1 indicate that the idea of usefulness of patterns, enters rather late at 10-12 and increases from there on. Question 7a: "Do you like this pattern because you would like to use it for a dress, coat, tie or other clothing?" was answered by girls, as was to be expected, mostly with the intention of using their preferred pattern for dresses, while boys would like to use their preferred pattern for ties. From the age of eleven on use of the patterns for modern dress is suggested most often, whereas up to that age, uses for the stage are of more importance.

GRAPH IX

ANSWERS TO QUESTION 7a, "DRESS" AND "TIE"

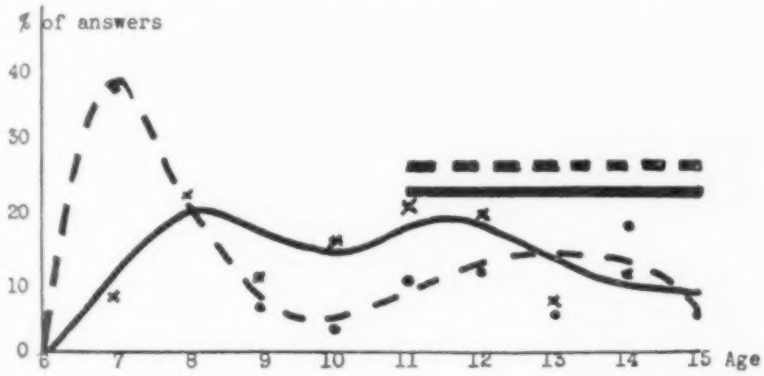


[21] D. F., age 10: ". . . the one I chose was not fussy and not too full and did not have so many colors."

Question 7b: "Do you like this pattern because you would like to use it for hangings?" was answered very emphatically with "Yes" throughout all age levels and there are more answers to this question than to 7b: "For what else?" showing that the use of textile patterns for hangings occurs more frequently to all age levels than a variety of other uses. Here the Specials (boys) differ from the Averages inasmuch as they think of more other uses for textile patterns. The question 7b: "For what kind of room?" hangings of the chosen pattern would fit was answered mostly as to the use of the room: Living room, bedroom, etc., comparatively few considered this problem from the point of view of looks of the room: size, color, type of furniture, etc. The seven year old boys, and both girls and boys age 8, make an exception; so do the Specials. Graph X gives a picture of the distribution of these more unusual answers.

GRAPH X

ANSWERS TO 7b: KIND OF ROOM, REFERRING TO COLOR, SIZE, SHAPE, INSTEAD OF TO THE USE OF A ROOM (LIVING ROOM, BEDROOM, ETC.)

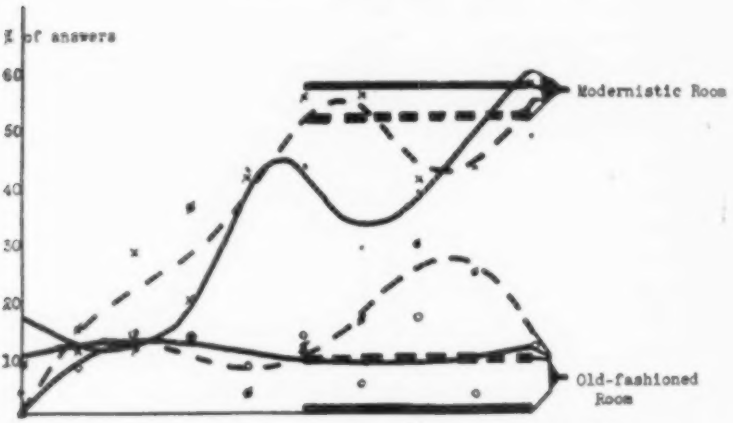


It is further noticeable that the use of the preferred patterns in modernistic rooms dominates distinctly the use in old-fashioned rooms, in the answers of the Specials (although many of these preferred patterns are from the historical group).

Question 9 and 9a: "Would you like to design or weave a pattern like this one? Is designing and weaving of patterns a thing you especially like to do?" are answered affirmatively by an average of over 70 percent and 50 percent by the younger group, and by an average of 50 percent and 30 percent by the older group, while the Specials respond with about 15 percent and 18 percent.

GRAPH XI

USE OF PATTERN IN MODERNISTIC ROOM AND IN OLD-FASHIONED ROOM. ANSWERS TO QUESTIONS 8a AND b

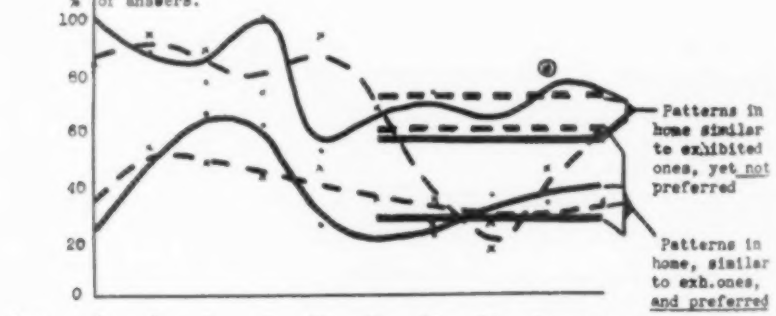


The younger group alone wishes for changes of any importance. The older group is little interested in changes, the Specials still less so. For the last question: "Have you a pattern like any of these at home? Which one?" Graph XII is self-explanatory.

Graph XII shows distinctly that the younger age levels are least affected by the familiarity of the pattern or special knowledge connected

GRAPH XII

ANSWERS TO QUESTION 11. AMOUNT OF PATTERNS SIMILAR TO THE TEXTILES EXHIBITED WHICH SUBJECTS HAVE SEEN IN THEIR HOMES



with this pattern and that the influence caused by familiarity and knowledge increases rapidly, reaching a peak (64 percent) at the age of 13 (boys 44 percent, girls 85 percent). The Specials are less affected by familiarity yet far from being independent.

INTERPRETATION

The results of the votes on textile patterns show decided preferences for a few patterns and comparative indifference to the rest of them. By combining first and second choices the chances for a spreading of votes are greater, yet votes were concentrated on a few patterns. Three patterns, out of thirty-nine, are preferred through all age levels.

Pattern No. 7, representing large sized elephant heads, is the best-liked of all. The most outstanding features of this pattern are: realism of the elephant heads (while pattern 39, also an elephant pattern, representing a whole elephant, is strongly stylized); movement in the rolling of the elephant trunks which grasp the branches (while elephant No. 39 is static); branches which suggest the jungle and elephant trunks encircling the branches, symbolizing strength that can conquer the jungle (while elephant 39 has the saddle and trimmings of the domesticated or circus show beast) and perhaps also its modernism (while No. 39 is antique). Although the colors are striking and the material (brocade) appeals by its texture and metallic sheen, the reasons given for the preference of No. 7 indicate that color is the secondary factor in the choice. Apparently young children like elephants especially and think of them as an excellent subject matter for pictures. (Many children want to use this pattern—in answer to question 7d: "For what else would you like to use this pattern?"—as "wall hanging" or to "frame it.") The reality of representation even in patternized form, and the suggestion of movement, stimulate the older group's ideas of jungle stories, and explorer fiction. They associate the pattern with such imaginings. (Some answers to question 7b "for what kind of room?" suggest its use in a "trophy" room). The remarkable color combination and the texture of this pattern merely strengthen the subject interest and serve to help the child decide about his preference.

Pattern No. 19 is another of the three vastly preferred patterns. The young children, 6 to 8, share the liking for this pattern in a moderate degree. Beyond this age the girls support this preference almost alone. There are a great number of other floral motifs which appear not at all or only sporadically in the preferred group. The floral pattern of No. 19 is distinguished by the size and clarity of its floral motifs. The colors and

the material of the pattern support the choice, which is probably primarily induced by the intricacy and distinctiveness of leaves and blossoms. Also, although stylized, they look very "real" in every detail. The background, which suggests an iridescent satiny quality of surface is unusual and entirely different from the other patterns of the exhibit.

Pattern No. 34, an American-Indian pattern, geometrical, in crude yet striking colors, neither shows nor suggests texture or material. The choice is supported only moderately by girls, mostly by boys. Some of the reasons given for this choice, especially by the younger children stress the brightness of colors, the dominance of red, the clearness of outline. The majority of answers, however, either specifically or indirectly, points to knowledge of the type of pattern, to a general interest in Indians, their lives, stories about them and other associations.

This seems to indicate that reasons for the preference for Nos. 7 and 34, so greatly supported by boys, may be sought in the fact that these patterns appeal to a lively interest in certain objects (younger age levels). This interest is enhanced by the imaginative possibilities in the pattern conjured through association with the subject and because of spheres of interest, touched by the subject. Evidently boys, even in their reactions to patterns, are governed by their general activity interest. This applies to some girls, but a larger number of girls follow a more static type of interest, interest in decorative appearance. That is, girls associate patterns closely with some kind of adornment, even when it is not a matter of immediate usefulness. It is significant, however, that their choice embodies a reality—and not an abstraction—: flowers.

From this point of view it is interesting to follow up other preferred patterns, which are preferred only at certain age levels. No. 6, preferred during ages 6 to 8/9, is a pattern which combines abstract forms and animals, and according to answers to Question 1, the animals decided the choice. No. 5 is a preferred pattern by girls up to the age of 11/12, doubtless due to the doll and toylike motifs. No. 4, preferred by some boys, is a bright and brilliantly colored floral pattern, for many of them associated with things their mothers wear or might wear. Nos. 35 and 36, favorite of girls, are respectively gay colored and black-and-white floral patterns. No. 32, a monochrome, is a narrative pattern and interested the boys the way illustrations do. No. 10, another boys' favorite, which is appreciated for the armor and arrows, stimulates numbers of associations with stories of knights (it was not recognized as "oriental," but identified with occidental medieval times). No. 13 belongs in the same category and

seems to be liked for the same seasons. Nos. 24 and 25 are tree and plant patterns.

The only preferred pattern of purely abstract design other than No. 34, is No. 8, a modern arrangement of discs, squares and other geometric forms, in a limited color gradation of buff to brown. It attracts age levels 11 to 15 to some extent. The reasons stated relating to No. 8 indicate that this pattern appeals first of all because of its colors,[22] second because it is modern.[23]

There are only three clear statements that indicate that the abstract design of this pattern decided the preference.[24]

With the exception of No. 7, which is even more favored by Specialists than by Averages, choices of the Specials differ from those of the Averages. No. 34, so much preferred by average boys, is non-interesting to either group of Specials. Nos. 10 and 6, modern Japanese textiles, are insignificant to Averages, but attract Specials to quite an extent. Nos. 19 and 35 only mildly attract special girls. According to the answers to Question 1, the imaginative and associative qualities of No. 7, combined with the color and texture, (of which the Specials are much more aware than the Averages), decide their overwhelming preference for this pattern, a preference which is 50 percent higher than that of the Averages. Nos. 6 and 10, two patterns appreciated by the youngest groups because of the animals in No. 6 and the armor in No. 10, are preferred by the Specials because of the combination of line and color qualities with abstract parts. The abstract pattern, No. 8, is also a favorite with special boys, and according to their explanations, it is the color and the modernism in this pattern which decide their choice. From this, one might conclude that the Specials are more inclined to appreciate abstract patterns than the Averages. Several factors have to be considered in this connection. The Specials have more training in seeing and thinking in terms of modernistic and abstract art. Being especially interested in art, they discuss more phases of it and analyse it much more closely. It seems likely that they also are less inclined to be guided by liking alone, and are more influenced by their own criticism of what they consider "good" or "bad"

[22] "No contrasting colors," "simple and plain combination of colors," "favorite colors," "matching of colors," "blending of colors."

[23] "It is very modern, they are making patterns like this to put on walls," "modern, yet easy to look at. Most modern patterns are so jumbled . . . but this . . . has soft colors."

[24] To quote from these 3 statements . . . these shapes "hit my idea of a textile," . . . the use of circles is very old and in this pattern done extremely well, . . . "because I always use geometric figures for a design."

qualities in a pattern, while the Averages react more naively, unconcerned as to aesthetic worth or value of the patterns.

The curiosity to find out what constitutes the appeal of a pattern, be it color, arrangement, line or subject leads to a more or less close analysis of the pattern. An analysis of this sort perhaps serves the purpose of clarifying otherwise hazy impressions. Analysis is conducive to learning; therefore the desire for clarification combined with the desire to learn something from the admired pattern lead to an analytical approach. Approaches of this sort are made by Specials, not by Averages.

Graphs III and IV point definitely to color as the main factor in making a choice. This factor of color is present in almost every answer to Question 1 and is answered nearly 100 percent in specific questions (Question 4a-e). This would lead to the assumption that color primarily determines the choice. Therefore is it not color differences which should be considered first in appreciation of patterns? However, according to the answers given, although color is mentioned so frequently as an attractive factor, the decisive reasons occur in connection with the subject matter of the pattern, with associations, material, usefulness and a large number of other factors. Color is also of importance, but, in a majority of cases, is not more than an additional weight to tip the balance. Changing some of the colors in the patterns or presenting the patterns uncolored quite possibly might lead to the same choices. Color, in other words, is of great importance, but is by no means all important. There is no doubt, that arrangement and subject matter combined decide the choice and have the ascendency over color.

The differences in the interpretation of color reflect a general attitude per age level as has been found in a previous study.[25] Findings here confirm observations made as to the use of color in productive work at different age levels.[26] Younger children (6 to 9) are guided by favorite colors and variety and brightness of colors (6 to 12). Older children drop the idea of favorite colors, and prefer fewer colors which are more delicate and subdued.

It is further evident that among the younger age levels the variety of reasons given for choices is small and supported by few children, and that with advancing age not only the variety, but the number supporting the variety increases. Therefore the increasing number of reasons given per child may be considered as a growing ability to respond to influences

[25] See footnote ** on p. 1, Art Appr. II.

[26] Drawing analysis in progress at the Educational Department of The Cleveland Museum of Art. To be published in the near future.

and stimuli of surroundings and assimilate them and may perhaps also be considered as a developmental factor. The growing variety of reasons and the increasing number of answers supporting them is a measure for the difference in individual reactions to stimuli which, at younger age levels, fail to evoke a response.

Twenty-eight percent of all patterns in the exhibit were modern (11 patterns), and one of the three patterns preferred though all age levels is modern. Of all the other patterns, appearing sporadically as preferences at different age levels, ten preferred patterns are modern, and six belong to the historical group. Judging from the answers given to Question 1, preference because of modernism becomes articulate only after the age of 11, but even with the young children (6-11) 7 patterns out of their 13 different preferred patterns are modern. This leaves no doubt that there is a strong tendency towards the modern, although only older children are conscious of it. As for the Specials, 50 percent of the 60 percent of votes concentrated on 6 patterns, are votes for modern patterns. This percentage is still more overwhelming if one remembers that only 28 percent of the exhibit are modern patterns. The accentuated trend towards the modern on the part of the Specials can be looked upon as conscious partiality towards modernism. There is also no doubt that modernism in commercial patterns influences the average children and that their partiality towards modern patterns may be attributed to their surroundings.

The use of patterns for decorative purposes in rooms, or for clothing also shows the trend toward modern use, even when referring to the choice of an historic pattern. It must be kept in mind that the children did not know which patterns were modern and which were historical.

Originality, in the preferred pattern, is also a factor which emerges more often at older age levels and especially with Specials. Yet the originality of a pattern is not as important for the Specials as its technique.

In comparing the average group with the Specials, there is one obvious difference between the two groups: Qualities important in artistic achievement, such as technique, line and shape, texture and material, originality, are picked out as influential in the choices of the Specials, and personal factors, such as the subject of the pattern, emotional and other associations, and familiarity are reduced. Omitting color and arrangement interests, which are nearly the same for both groups, the percentages of subject interest, associative factors, and familiarity amount to 21 percent with the Averages and to 11 percent with the Specials, while the percentages of technique, line and shape, originality and texture amount to 8½

percent as compared to 23 percent with the Specials. The conclusion to be drawn is that as a group, the Specials analyze their preferences and make their choices more in terms of certain aesthetic qualities, whereas average children choose and interpret their choice more in terms of general, personal, associative qualities of the pattern.

One of the most interesting facts brought out through the answers to Question 7b (see Gr. X) is the prevalent connection of the looks of a pattern with the use of a room instead of with the looks of a room. This can only be explained by influence of familiarity—(certain patterns are used only in a living room or a bedroom, etc.)—and inability to think in terms of aesthetic factors for both the pattern and the room. Instead, the subject of the pattern and the subject (use) of the room are connected.

It is necessary to point out that some qualities such as color and arrangement cannot be considered as separate factors. Each is present in every one of the patterns, but sometimes affects the child indifferently, sometimes strongly supports his preference.

The importance and weight of all answers other than to Question 1 have to be considered with a certain reserve. Question 1 is the only one calling for answers the contents of which are in no way suggested and are therefore relatively spontaneous. The answers to other questions are influenced from outside, in that putting the question is in itself a suggestion to look at the pattern from a certain viewpoint which may not have occurred to the child. Therefore the specific "yes-no" questions are, to some extent, additional or complementary questions to the first question.

THE SUMMARY

The problem of what qualities in a pattern determine the choice (preference) of a pattern by children is being investigated with the help of an exhibit of 39 textile patterns, chosen by children from a preliminary exhibit of 127 textiles. 259 boys and 261 girls, 6 to 15 years old, and a specially gifted group ("Specials") of 26 boys and 17 girls, 6 to 15 years old, were used as subjects. The textile exhibit contained 11 modern and 28 historical patterns, some of them in originals, the others in large sized facsimile prints. The children viewed the exhibit in small groups and answered a questionnaire about the reasons for their choices.

The results show a preference for three of the 39 patterns; this preference enduring through all age levels, (Nos. 7, 19, 34). One of these patterns, No. 7, is also preferred by the Specials. The preference for the three patterns, and the reasons preferred, indicate that the boys are in-

fluenced in their choice (Nos. 7 and 34) by interest in the subject which is represented, and by associations conjured up by it. Their reactions to patterns are governed by the general activity interest of their age. Girls share the subject interest of the boys to some extent, but to a larger extent exhibit a more static type of interest (No. 19), an interest in decorative appearance which is embodied in a reality (flowers), not in an abstraction. This is true even though the chosen pattern is not considered for immediate practical use. Other preferred patterns at different age levels sustain this point of view and illustrate the interest in patterns which present realities (animals, flowers, people, objects) and stimulate associative imaginings. The interest in the abstract is practically nonexistent with younger age levels and is a limited one at older age levels, but considerably higher with the Specials who are familiar with, and trained to think in terms of modernistic and abstract art.

Color may be considered as a necessary presence in each pattern supporting or emphasizing the choice. Appreciation of it varies with age levels. Younger children are attracted by brightness, variety of colors and favorite colors. Older children prefer fewer colors in more subdued shades. The variety of reasons given for the preference of certain patterns grows steadily with advancing age and so does the number of children supporting this variety. Variety of reasons, therefore, may be considered as a maturity or developmental factor.

Although no information about any pattern was given—modern patterns are chosen in larger numbers than patterns of the past, especially by Specials. Importance of the choice is augmented at older age levels by giving modernism as a reason for preference. It indicates a conscious partiality towards modernism.

Comparison of the reasons given by Averages and Specials brings out one obvious general difference. Specials pick out qualities—to support their choices—which are important in artistic achievement, such as technique, line and shape, texture, originality, and they reduce the importance of personal associations of various kinds. They interpret their pattern preferences in terms of aesthetic qualities, while average children interpret their choices in terms of general, personal and associative qualities.

In pattern preference there exists a decided difference between Averages and Specials as to choices and reasons for the choices.[27, 28]

[27] A comparative study of 11-15 year old white and negro children on Art Appreciation of children (subject pereference, portrait preference and textile pattern preference) is to follow as the last article in the series of investigations into the art appreciation of children.

[28] I wish to thank Mrs. Esther Marshall Sills and Dr. E. N. Barnhart for reading this manuscript.

A RESEARCH PROGRAM IN ART APPRECIATION

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Editor's note: Much has been written in recent years on the subject of art appreciation. The author raises a number of important questions relative to the practices in this area, and suggests a program of much needed scientific investigation.

WHAT is art appreciation? What does a person *do* when he *appreciates* a painting? Is this behavior different from the appreciation of a mathematical formula or an experiment in chemistry? How does he *feel?* What is the role of the emotions? Of the intellect? Can appreciation be developed, or is it an inborn capacity? Does a person have to try his hand at painting in order to appreciate the work of artists? What is the relation of appreciation to creation? These questions need answers. Every art teacher would benefit from knowing more about the nature of appreciation, but such knowledge is particularly important to teachers of art in a general education program.

College courses in art appreciation are new. They are like the young of any species—gawky, undisciplined, but vigorous. We teachers ourselves are uncertain, wondering which way to turn, what to do next. We have followed many false paths, have sometimes grossly overestimated our accomplishments, but in this very instability, this questioning, experimental spirit, lies the greatest hope for future programs of art appreciation. Moreover, it is worth noticing that these programs and courses are rapidly increasing in number. Why? Because forward-looking educators are talking of courses which (1) will interest the student, (2) be useful to him when he becomes an adult member of his community. A lively course in art appreciation can do both.

Much material relating to art appreciation has been developed by workers who differ markedly in their training, their attitudes toward art, their methods of attacking the problem, and their reasons for being interested in the subject. It seems that the art teacher should have little difficulty in organizing a thoroughly defensible approach to the development of art appreciation. But such is not the case, for in spite of the contributions of artists, philosophers, etc., etc., the majority of teachers do not have a clear concept of the appreciation process. If asked to define appreciation, they reply with statements often vague in the extreme, frequently in contradiction of their own teaching procedures. Teachers

of art appreciation can discuss and debate, endlessly and fruitlessly, on fundamental issues with little hope of accomplishing more than an exercise of their skill in debate. Or worse, they may not debate.

Why does this confusion exist?

First, because no investigators have proceeded step by step in an integrated research program. The major issues concerning art appreciation have not been clearly stated, the major problems have not been clearly delineated, and a carefully planned program of research and service has never been organized and completed. The philosophers have dealt in vague generalities, the psychologists have engaged in piece-meal research. It is easy to become so engrossed in small projects—planning a series of lectures, keeping students active during laboratory periods, constructing a test, writing a textbook—that the major plan (if there ever was one) is forgotten. Personal interest or available materials are likely to suggest the specific task assigned. A study is done on this, a theory is spun about that. When completed, it is published as a separate study, or as one of a series of unrelated studies. It is catalogued in a library and consulted occasionally. To be sure, every report is valuable but it does not make its fullest contribution unless it is fitted into a larger plan.

In attacking any complex situation, educational or otherwise, it is often more difficult to discover the problems than to find the solutions. Establish the general directions, locate the centers around which to work, analyze the complex into its constituents, and a major portion of the work is done. The later decisions are less important and easier to make. At best the project seems to develop under its own momentum, at worst it can be guided methodically if the project has a good basic plan.

Second, most art teachers make no use of the experimental and theoretical work that has been done. We may be unaware of its existence. Or we may hear of it, comment idly, and do nothing. Experiments are performed, new tests are constructed, new theories are developed and old theories are exploded while art teaching remains as it was. It is easy to follow the old. It is difficult to analyze, integrate, compare and evaluate the new. This explains in part the convention of teaching art appreciation as art history even though the two are far from identical. Art history aims to give knowledge and a luxury cultural background. Art appreciation aims to develop vital experiences. But the educator who is steeped in tradition confuses the two. The writings of Santayana and

Dewey alone should clarify this issue—if they were read and assimilated. But convention, not experimentation, holds the reins.

Third, most of the available material on art appreciation is purely theoretical and speculative, some is anecdotal, and only a very small portion is scientific. The contributions made by the philosophers are largely speculative in character, those made by artists and art teachers are mainly anecdotal or speculative while those made by psychologists are primarily scientific. There is need at present to test scientifically the theoretical and anecdotal reports already made if they seem to have value for the art teacher. This is one of the simplest methods of lessening the confusion about art appreciation. If two theories are directly opposed, all available evidence on both sides should be organized, and any necessary additional data collected. The constant aim should be to substitute objective evidence for personal opinion, to be skeptical rather than dogmatic, to test all theories in practice. Beyond this ,there is striking need for exploring new directions, gaining evidence on other issues.

Consider the question often asked: Is art appreciation emotional or intellectual? (This is admittedly a foolish question, but in occurs with distressing frequency). The question has been answered many times and in many ways. The answers differ profoundly, are sometimes diametrically opposed. The speculative method favoring indulgence in imaginative and theoretical discussions answers the question in theoretical terms. Logic is the guide. But as philosophers have ably demonstrated logic is invaluable in the early stages of problem-solving, but it must be substantiated by other means. The anecdotal method answers the question in terms of one or two personal experiences. This is better, but we need a hundred or a thousand for sound evidence. Both methods are subjective, and consequently offer little opportunity to decide a case by weighing, comparing, and contrasting the objective evidence on both sides. Neither method is adequate.

To answer the question, Is art appreciation emotional or intellectual? by the scientific method one must first state the issues involved with precision and with considerable attention to the usefulness of the statement. The terminology should be clear, not vague; specific, not general; concrete, not abstract. Assumptions and hypotheses should be so stated that situations could be set up to prove or disprove them with high objectivity. Speculation and personal observations would play their part but would not dominate.

After working for several years at the task of developing art appreciation, the writer suggests the following outline as a tentative program for investigation. The project is outlined under a series of major issues, each stated as a question to which an answer is sought. Secondary points which throw light on the larger problems are developed as subproblems. As organized, the outline applies especially to the plastic arts at the college level but it could easily be adapted to the appreciation of music, literature, movies or even to other college subjects such as history and science.

A. *What is appreciation?*
   1. What are the definitions and explanations in current use?
      a. In the dictionary
      b. In the textbooks of appreciation
      c. In philosophic discussions
      d. In psychological experiments
      e. In terms of everyday human behavior
   2. Which are the most useful to the teacher of art appreciation? Is any single definition sufficient?
   3. What do we know about the psychological processes which are related to appreciation? Their nature? Their importance?
      a. Sensation
      b. Perception
      c. Intellection
      d. Generalization
      e. Verbalization
      f. Affective states
      g. Empathy
   4. How is appreciation expressed?
   5. Is appreciation in different fields (art, music, science) similar?
   6. How is appreciation related to creative activity?
   7. How does training influence appreciation?
   8. How does heredity influence appreciation?
   9. How does knowledge affect appreciation?
   10. How does critical analysis affect appreciation?

B. *What are the specific objectives of art appreciation courses in terms of student behavior?*
   1. What knowledge of facts and principles will be useful?

2. How should these facts and principles be applied to develop a worthwhile, personal appreciation of art?
3. What attitudes are conducive to deeper and wider appreciations?

C. *What are the advantages of different teaching procedures in attaining the objectives of art appreciation courses?*
1. Contact with works of art
2. Demonstrations
3. Discussions
4. Lectures
5. Participation with materials
6. Readings

D. *What course content will be most useful?*
1. Are group opinions of value in determining course content?
   a. Art experts—architects, designers, painters, etc.
   b. Teachers of art
   c. Teachers of other subjects
   d. Adult citizens of the community
   e. College students
      (1) Enrolled in art courses
      (2) Not enrolled in art courses
2. What direct observation of human behavior will be useful?
   a. The amount of time spent in
      (1) Homes
      (2) Art museums
      (3) Public buildings, etc.
   b. The relative effects of each of the above
   c. The amount of interest shown in different areas by
      (1) Money spent
      (2) Books read
      (3) Conversation, etc.
3. What help can be gained from courses of study now used?
   a. In college
   b. In the elementary and secondary levels
   c. In the educational programs sponsored by museums

E. *How can various stages of the development of art appreciation be measured or observed?*
1. What values can be derived from the measurement of art appreciation?

2. Should appreciation be defined in terms of human behavior, such as
   a. Ability to rank art objects
   b. Attitudes toward art
   c. Knowledge of historical facts
   d. Knowledge of principles of art
   e. Enjoyment of art, etc.
3. Which phases of appreciation are measurable?
4. Which can be judged subjectively but not measured?
5. Which methods of testing are most useful?
6. Are we to accept the opinion of art experts in evaluating test items?

F. *How should art appreciation be integrated with other subjects?*

1. What are values of integration?
2. What are the values of different methods of integration?
   a. Visiting lecturers from other fields
   b. Integrated laboratory periods for music and art, etc.
   c. Integrated problems
3. Should the courses in appreciation of music, art, etc. have similar basic organizations?
4. Should there be one course integrating all of the arts?

These are some of the problems. Others would develop as work progressed. The methods followed should grow out of the specific nature of each problem. Some phases of the work would be accomplished by compiling in an orderly fashion materials already available, evaluating them, comparing results, and stating the conclusions and interpretations so that they could be used by art teachers. The questionnaire (with all its disadvantages) might be brought into service. Introspective reports might play their part. Direct observation of the reactions of individuals in art galleries, department stores, etc. would be worthwhile. Finally, carefully controlled experiments could be conducted.

It may be worthwhile to consider in more detail the methods by which one of these questions could be answered. One of the questions stated above, "What are the advantages of different teaching procedures in attaining the objectives of art appreciation courses?" may be taken as an example. First it is necessary to state clearly the objectives of the course. Further it is essential to define these objectives in terms of observable student behavior. Course objectives should be stated not only

to provide a basis for planning the course but also as a basis for evaluating student progress. Vague, general objectives such as "to develop an appreciation of art," or "to develop culture" have little value because they suggest no direct way of determining whether or not these aims have been achieved. On the other hand, if these objectives are analyzed into specific terms, such as "to distinguish between good and poor paintings," or "to know the basic facts and principles about color," the degree to which each student has achieved these aims may be readily estimated, observed or measured.

After the objectives have been stated clearly, the second step is the development of measuring instruments or techniques of observation to reveal the degree in which this particular ability is present. Thus, it is relatively easy to construct a test which will show whether or not a person chooses good or poor paintings, and it is not difficult to devise a test to measure a student's knowledge concerning color facts and principles. However, a word of warning may not be out of place. Many studies have attempted to compare the laboratory and lecture methods of instruction. Unfortunately, most of these studies have compared the two methods on only one or two of the possible outcomes of instruction. Generally, the acquisition of facts has been emphasized, and other less definite but possibly more important types of student growth have been overlooked. Naturally this is quite as much a reflection on the statement of the course aims as on the evaluation program. To be valid it is essential that any evaluation of teaching procedures be planned on a far broader basis than the simple acquisition of facts.

After the course objectives have been stated, and tests or techniques invented to measure them, the specific values of each teaching procedure may be determined by setting up control and experimental groups in the customary manner. However, it should hardly be the purpose of such a study to prove that one method is superior to another except for *certain students* or to promote *certain types of student development*. A comparison of teaching procedures should attempt to give a better understanding of each technique so that it could be used more wisely rather than to prove that one is always superior. In this way, much new evidence on a question of great interest to teachers of art and other subjects could be obtained.

As rapidly as units were completed, they could be organized in tentative reports. However, the findings of each worker should influence to

some degree the reports of all others. The great need is for coöperative planning and coöperative activity. This suggests a project of considerable magnitude, far larger than could be handled by an individual, possibly larger than could be undertaken by one art department. Many persons should coöperate, each contributing one or more units to the whole pattern.

There is even now a striking need for some publication which will summarize regularly, let us say every five years, the important educational and psychological contributions to the field of art. If the project outlined above were carried out, the need would be still greater. At present the classroom art teacher can hardly be blamed for not assimilating the results of new experiments when the reports of these experiments are published only in highly technical journals. The elementary school teacher, who in recent years has made perhaps the greatest progress in the field, could profit from knowing the facts contained in some of the recent literature on color phenomena, but she can hardly be expected to consult the journals prepared primarily for the professional physicist or psychologist. The publication suggested here should be prepared by a group of experts familiar with the problems of *teaching art to the layman*. Then it would directly fill existing needs, would be related to contemporary conditions, and would permit all art teachers to share the benefits of progress.

Making these materials available would not result in a standardized course of study to be used indiscriminately. It would not result in a few tricks or techniques to be followed blindly. But it would give each art teacher a richer understanding of his own problems. Further it would provide some insight into ways of solving them. In sum, it should provide a body of organized knowledge of the important but little understood question of art appreciation.

EDITORIAL

THE EDUCATIONAL ENGINEER'S USE OF MEASUREMENT

In the April issue of the *Educational Record,* Dr. Mark A. May distinguishes the essential requirements of a measuring instrument when compared with a test as the scientist uses these words. Ten tests of measurement are described. He says, "Instruments of measurement come after laws have been established between qualities that are directly measurable and those that are not."

Dr. May is a skilled writer in the presentation of the steps so far taken by common sense toward an organized study not only of what intelligence is and of how it is used in the processes of learning, but also of how to adjust growing ability for the increasing complexities of learning. Common sense as he shows, is concerned at first with the quality of intelligence, as it is evidenced by its influence upon thought and action, rather than upon a measure of its activities. To show the need for measurement he says, "Now common sense, which is so certain that intelligence exists in most humans, cannot tell us where to draw the line between those organisms that have it and those that do not." He notes, also, that this problem has been so difficult for the psychologist that he "returns to common sense and builds himself a crude kind of a 'detector' that he calls an intelligence test." This is useful, "because it not only 'detects' the presence or absence of intelligence but also, so he claims, measures the amount of it." The question as to whether such a 'detector' can be validated by the "appeal to the judgment of competent people" brings Dr. May to the further discussion of each of the requirements described as the ten tests of valid measurement.

The standardized tests now used to measure attainment in school subjects of study, meet only the first three or perhaps four of the ten critical tests or experiments required by science to determine that the measures by cardinal numbers can be assigned to the relationship expressed by some known or accepted law for the situation. That this relationship exists may be checked by what the scientist calls a test, that is, by a critical experiment that determines the existence of the law.

Accepting these definitions, what laws of growth for mental power and for learning attainment will enable us to determine measurements of learning aptitude as growing ability, and also of learning attainment as the result of instruction?

This question appeals at once to the educational engineer but from quite a different point of view. In all engineering work measurement is used to adjust present situations to those by which a more desirable or a more effective product is secured. The educational engineer needs a knowledge of the facts which condition the use of abilities and affect the results of instruction, and needs also to discover, by the use of adequate experiments and measurements, the means by which better results may be obtained. His measures are not related to an absolute zero, but must begin with and advance to definitely chosen limits which are determined from the conditions as they exist in the situation.

In the school situation the limits of measurements are determined with reference to the chronological growth in years. This is possible because of the fact that general intelligence has a particular growth of ability during the chronological ages up to age fourteen or fifteen, and the fact that general elementary school learning is measured as a uniform educational development quite definitely only between the ages of seven to fifteen, and the fact that this development is about uniform for each individual, though it varies in amount in relation to mental brightness. These facts suggest to the educational engineer an age measurement beginning with unit, one, at age seven and extending definitely to age 14, and for practical purposes to age 17.

Such limitations when properly related to the general laws involved, do not change the requirements for the measurement instrument as set up by Dr. May. In fact, the first two facts limiting, as they do, only the time range to that portion of age growth for which we have quite definite evidence of the laws of growth, fix the particular relations within which a measurement is to be sought. For this particular period there is an extensive body of facts available from the very wide use of intelligence examinations and of standardized examinations in school subjects of study. Such facts are aids to establish measurable relations between the action of the laws of mental growth and those of instructional development.

When a time series of units of growth is taken to begin, at age seven, it may then be established as a cardinal series of age units of measure. It is necessary, however, that the number '1' be exactly equal to the

first member of the series of growth units recognized for the time limits to which the law of relationships are to be applied. Also it is necessary for measurement that each succeeding unit of the series be exactly equal to the first. To meet these requirements, the series of units in the growth of general intelligence needs to be found by a series of exercises so established by extensive experiments with groups of minds at stated units of chronological age as to become measures of growth for each growth period. The units for this measurement of ability are to be also, a definite and equal division of the age period taken for the time required for minds of median growth of ability to reach the present accepted amount of attainment in the elementary school course of study. By this means the same age units apply to growth of aptitude and of attainment. The attainment by the minds of median ability fits with the mental age units on the chronological age scale and, of course, is not the attainment made by the brighter minds on the school course. It is this median ability attainment age which determines the units for the attainment measurement on the same scale with mental age growth. Two facts are necessary to place this attainment age unit on the age scale. Both of these facts are available from the results of a very extensive use of standardized tests in the elementary schools throughout the entire country. The first is the fact that in general the median pupils advance quite uniformly from year to year in the school course. The second fact is that under present conditions the median pupils attain a definite percent, about seventy, of the elementary course of study by age fourteen.

A uniform scale that can be applied to aptitude growth and also to attainment may, under these limitations, be taken as having the beginning unit of measure at chronological age seven and as advancing unit by unit for the median ability pupils to fourteen years of age. As an assumption, this measure up to age fourteen may be taken at this time to be 70% of the elementary course of study. The scale, therefore, would be a percent measure of attainment and of growth of aptitude which could be translated directly into chronological age units beginning at age seven and advancing at the rate of 10% for each year to age fourteen. This scale may be assumed to advance at a like rate and so be used as a measure of the bright minds who attain 80, 90, or perhaps 100% when they are 14 or 15 years old.

The above discussion is intended to illustrate within what limits a definite measure of individual success for school pupils may be used in cardinal units, and also the evident value for the use of such units because they may be added, subtracted, and even squared, for a definite comparison between individuals or classes.

AN OBSERVER.

REVIEWS

Address all communications relative to book reviews to Editor Kai Jensen, University of Wisconsin, Madison, Wisconsin.

LLOYD-JONES, ESTHER MCD., and SMITH, MARGARET RUTH. *A Student Personnel Program for Higher Education* (New York: McGraw-Hill Book Company, Inc., 1938), pp. x + 322. $2.75.

The title of this book is descriptive of its contents. It is, in truth, "the first comprehensive treatment that has yet been made of student personnel work in higher education" as the blurb on the jacket proclaims. The authors are to be congratulated for their recognition of the need for such a comprehensive outline, for their courage in attempting to meet that need, and for their competent presentation.

The "total personnel program" is introduced by three chapters devoted to the philosophy and organization of all those aspects of higher education which may properly be subsumed under the heading of student personnel work as related to, but distinct from, instruction and business management. These three introductory chapters are followed by fifteen chapters each devoted to a discussion of a specific phase, activity, service, or function. A mere listing of these indicates the complexity and extent of a maturing student personnel program,—selection and admissions, orientation, socialization, counseling, discipline, educational and vocational guidance, financial aid, extra-curricular activities, housing, health, religion, placement, records, administration, and research.

One of the best chapters in the book, in the reviewer's opinion, is that which deals with the scope and organization of the student personnel program. The authors report their study of recent catalogue announcements of 521 colleges and universities showing that 6,850 persons having 216 different titles are performing one or more student personnel functions. The number of persons so engaged is astounding. The number and variety of titles, however, is disturbing since one may properly infer a widespread confusion of nomenclature and a probable overlapping of duties. One is inclined to conclude that student personnel work has "just growed" like Topsy. This being true, the time seems ripe for clarification, simplification, and coördination. The authors attempt this in chart form (a dizzy affair with innumerable lines, arrows, and circles).

Another "high-point chapter" in the book deals with the development of an adequate counseling program. Especially valuable appears to be the comparative description of counseling programs in four hypothetical colleges. Or are they hypothetical? Three of these programs are obviously ineffective whereas the fourth approaches a degree of effectiveness which is much to be desired albeit rare.

A commendable feature of the book is the straightforward way in which undesirable personnel practices are condemned. For example, the well-known but infrequently mentioned methods of proselyting

for prospective students. The layman may be surprised to note how unethical these practices may be even though no mention is made of the activities of loyal alumni groups who seek out and compete for the services of the star athlete! The attack on sham student self-government schemes may be cited as another example of personal malpractice which the authors censure.

It is obvious that the discussion of all phases of student personnel work within the limits of some 300 pages would necessarily mean that the treatment of any particular phase would be sketchy. But this is remedied in part by the inclusion of selected references at the end of each chapter. Nevertheless, there are errors of omission and of commission which cannot be excused on the ground of lack of space. For example, in charting the student personnel program the authors recognize "point of view," "administration," and "services" as *the three* aspects of the total program. Many would insist that "research" is as important as, and in the present stage of developments perhaps more important than, the "administration" and "services" aspects. One may also deplore the superficial discussion of pre-college guidance as if uniform application blanks, a statewide testing program, and a coördinated program for contacts between colleges and high schools were the final answer. In the discussion of social education and extra-curricular activities no hint is given as to the need for and the means that might be utilized for individualizing these group activities. In several portions of the book the authors seem to treat tests and measurements as if they were necessary evils to be tolerated rather than embraced. Those specializing in guidance testing are attacked for their asserted one-sidedness and narrowness. Tests themselves cannot be mentioned without stressing that "the greatest possible accuracy must be insured." And it is asserted that "no problem has yet been solved completely by tests." Now one cannot object to these statements *per se*. But the same things could be said about health services, about teachers' estimates, about interviews conducted by deans of women, about methods of administering financial loans, or about any other office, service, or method in the whole gamut of student personnel work. And yet the authors proceed to supply the reader with the names and addresses of 91 publishers and distributors of tests as well as to provide a classified list of 612 tests and measurements! Finally, the reviewer was somewhat vexed by the curt dismissal of the NYA in three brief and misleading paragraphs whereas many pages are devoted to loans, scholarships and fellowships. It is a fact that the NYA bulks far larger than loans and scholarships in insuring continued school attendance for able but needy high school and college students in public institutions and in many private institutions as well. Furthermore, the NYA program is meeting a need that existed for a long time prior to the depression. It deserves to be recognized by all personnel workers as a beneficent policy which must become a continuing and permanent obligation of federal and state government.

The above criticisms do not indicate that the reviewer is unsympathetic with the aim of the authors or undervalues their accomplishments. On the contrary, he believes that the book is a valuable contribution to the rapidly growing literature on student personnel work. It will undoubtedly facilitate the rapid growth of this type of educational endeavor. It can be, and hereby is, wholeheartedly recommended to college administrators, faculty members, student personnel workers, and those now preparing them-

selves for service in the field of higher education.

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SANDIFORD, PETER. *Foundations of Educational Psychology: Nature's Gift to Man* (New York: Longmans, Green and Co., 1938), pp. xv + 464. $3.25.

The subtitle of this book is "Nature's Gifts to Man." The field covered is "approximately the one which was called by Thorndike 'The Original Nature of Man.'" The chapter headings are—The Nature of Educational Psychology; Heredity and Environment; Individual Differences Found in Human Nature; The Foundations of Behavior; Non-variable or Unlearned Behavior; Reflexes, Instincts and Emotions; Intelligence: Its Nature and Measurement; and Personality: Its Nature and Measurement. A second volume is promised which will deal with the "Psychology of Learning."

The author of this book has done an excellent job. Every chapter is a thorough piece of work. The best research for each topic covered has been selected and is well reported. The interpretation is careful and scientific. The writing is clear and lucid. In no other single book is the "original nature of man" so well discussed. Sandiford has here provided an excellent foundation for subsequent study of the learning process. This book is especially recommended for students of education who have not come in contact with this material in other courses.

However, a few minor criticisms may be mentioned. In Chapter II the author speaks of maturation as "the attainment of the state of complete development." Then he says that maturation may be due to growth, defined as "mere increase in size," or to development, defined as a qualitative change in constitution which "somehow includes learning." This ambiguity could have been avoided by identifying growth with metabolism and then distinguishing between that growth which occurs irrespective of environment (maturation) and that growth which is controlled by environment (learning).

Then, Chapter IV on reflexes, instincts and emotions—may mislead some readers. Woodworth has well emphasized the importance of thinking of most psychological concepts as verbs instead of as nouns. In this chapter, Sandiford speaks of instincts and emotions as though they were entities which could be located. His explanation and discussion is excellent if the reader does not lose sight of the fact that instincts and emotions are forms of "non-variable or unlearned behavior."

The discussion of intelligence and its various definitions and theories is excellent. This is likewise true of the discussion of intelligence testing *per se;* but the relationship of test results to the assumptions and predictions made from them is not pointed out. So-called intelligence tests are only instruments which enable us to predict intelligence more accurately than is possible from naive observation. Surely tests do not actually measure that aptitude or capacity usually referred to as intelligence. In fact, many tests which are used for predicting intelligence are not called "intelligence tests" at all but "psychological tests." We do not know what our tests measure but we try to predict the degree of intelligence possessed by an individual from the score which he makes on these tests.

The chapter on heredity is especially good. Those readers who are not acquainted with genetics will find no better brief description of the mechanisms of heredity than given in this chapter. Students of education are too frequently unacquainted with the facts of genetics. As a result, they misinterpret the nature of the child and attempt to educate him

improperly. Much theoretical speculation in the field of education is of doubtful value because educators are not acquainted with the common facts of genetics.

For psychologists, there is little new in the book either in interpretation or the report of research. Such was not intended by the author. For undergraduate students in psychology, and perhaps even advanced students in education, there is much which should be studied carefully. This book should be the foundation for much educational thinking.

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HOPKINS, L. THOMAS, and OTHERS. *Integration: Its Meaning and Application* (New York: D. Appleton-Century Company, 1937), pp. xiii + 315. $2.00.

Professor Hopkins and the co-contributors to this volume present chapters on the meaning of integration as an educational concept, a philosophical problem, a biological phenomenon, a psychological and psychiatrical process. These are followed by other chapters applying the concept to the arts, curriculum correlation, the broad fields curriculum, the core curriculum, the experience curriculum, and courses of study in general. Integration is taken variously to mean intelligent behavior, a process of unifying experience, a primary condition to be considered, an end to be sought, a mode of participation and growth, a process which is at once social and individual, collectivism, a function of the nervous and endocrine systems, the complex co-ordination of the human organism in its learning, the product of full creativeness, and the efficiency of behavior possible in a circumscribed reality in which the organism can perform successfully. In short the book amply reveals that integration is one of those words which one must accept with blank and non-committal patience until the user explains what he means. In his chapters on the curriculum Mr. Hopkins deprecates the notion of any formal integration and makes clear his own preference for a curriculum of integrating experiences. All in all the book contains much of value to any reader who himself does not object to doing in a certain amount of integrating on his own steam.

M. H. WILLING
University of Wisconsin

MACLEAN, MALCOLM S. *Scholars, Workers, and Gentlemen* (Cambridge, Mass.: Harvard University Press, 1938), 86 pp. $1.00.

The Inglis Lecture of 1938 was delivered by the Director of the General College of the University of Minnesota. The theses developed are two: first, that secondary education (including the junior college) can devote itself neither to making all students scholars or workers or gentlemen, nor to making every student all three at once; second, that secondary education, properly adjusted to individual differences, should provide for skills and techniques, general education, and specialization for work or for scholarship. A satisfactory education at this level is one that cultivates such knowledge and conduct in a pupil as will make him "one who knows, is unafraid of, and is adjusted to the temper of his own times." Studies, workshops, laboratories, and experiences that will develop practical and aesthetic skills, orientation to the work of the world, personal philosophies of life, and special individual interests and aptitudes all belong in such an education. The lecturer notes rather positively that a program of literary humanism such as that proposed by President Hutchins will not make secondary education what it ought to be.

M. H. WILLING
University of Wisconsin

COULBOURN, JOHN. *Selection of Teachers in Large City School Systems.* Contributions to Education, No. 740 (New York: Bureau of Publications, Teachers College, Columbia University, 1938), pp. ix + 177. $1.85.

Practices in the selection of teachers in the thirty-seven largest cities in the United States were surveyed and then evaluated in terms of nineteen criteria which the author set up for effective teacher selection in large cities. An optimum procedure for the selection of teachers is included.

There is no organized presentation or summary of facts regarding selection practices of specific cities. However, interesting information found in the report include the following data: Eleven of the thirty-seven cities use the written examination for all teaching positions, whereas, they are used in four other cities in filling specific types of positions and their use is optional in two cities. Eligibility lists and fixed procedures of placement from the top of each list, with limited provisions for variation in unusual cases go along with the written examinations in most cities in which they are used. Maximum age limits of from forty to fifty years are common. Married women are specifically barred by board of education action in only eight of the thirty-seven cities. In most of the cities the selection of teachers is administratively the responsibility of the superintendent of schools, who has delegated this function to personnel officers. Each city has a definite procedure for obtaining information from and about applicants for teaching positions. Interviews are held except in unusual situations. Eleven of the city school systems require a "practical test" or demonstration of teaching ability for all candidates. Fourteen cities require a physical examination by specified school, city, or district physicians. Ten require a health certificate attested by a "reputable" physician. Cities maintaining their own teacher training institutions tend to give preference to the graduates of these institutions in selecting teachers, sometimes taking them without previous teaching experience, whereas, experience may be required of all others. In general, previous teaching experience is much more often a requirement for secondary than for elementary school areas. More than one-half of these large cities require previous teaching experience in filling secondary school vacancies.

In establishing the nineteen criteria for the selection of teachers in large cities the author makes no mention of the present lack of instruments for measuring the techniques of teacher selection. Repeatedly there is stated the assumption that if a practice is widespread and if it is approved by authorities in school administration therefore it is sound. It is not noted that the lack of objective evidence in this area leaves only the judgment of informed clear thinkers and present practices in apparently good school systems as basis for action. It might have been assumed that the author was aware of the difficulties of measurement were it not for the fact that the question of effectiveness was not raised as regards any of the practices with the single exception of the use of the written examination in teacher selection. Regarding this practice the author states, "moreover there are no studies to show that the teachers selected in those cities which do not require the written examination are less well prepared or less efficient than those selected through the medium of the written examination." It does not appear clear in his mind that the same statement is true as regards most practices in teacher selection.

To the reviewer the data in the report indicate that there are two schools of

thought as to means of effective selection of teachers in large cities. The members of one group see the dangers of favoritism, prejudice and unfair discrimination possible in placing too much unrestricted discretionary power in the hands of a single individual or group. Noting that often apparently the best qualified persons are not selected, this group strives for impersonal selection based upon objective procedures that have admitted weaknesses, but are obviously impartial. Hence, they are for divorcing the selecting officials from those placing the teachers and for freeing the former from the pressures from politicians and others. They approve involved examination procedures, on discrete, easily discernible bases. They seek eligible rank order lists from which the top person must be chosen in each classification as a vacancy arises, unless the selecting officer can convince the majority of the members of the board of education that the top name should be avoided. In contrast to the above stated position, the members of the other group still hold to the belief that there are distinct values in combining the selection and placement functions and in allowing the placement official wide choice and freedom in finding a teacher best qualified to fit the peculiar demands and needs of a specific teaching situation. They would eliminate or reduce the possible risks of inefficient selection due to personal prejudice, favoritism, bad judgment or pressures by selecting officials who are competent and trustworthy in selecting teachers. Some in this latter group would permit the building principals and the special or general supervisors to have a hand in the selection of a teacher to work under their supervision. Two-thirds of the teachers in the thirty-seven large cities of the Untied States are selected through a technique which includes written examinations and which tends toward the impersonal rank-order list type of program.

EARL W. ANDERSON
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SANFORD, CHESTER M. *Developing Teacher Personality That Wins* (Evanston, Ill.: Row, Peterson and Company, 1938), 160 pp. $1.60.

The development of personality have become an ever more important problem with teachers and pupils. Until recently personality and its development was discussed only by popularizers of various types who presented rules or formulas or "success stories." These writers usually had in mind either the successful business man or go-getter type of personality, or the "life of the party" individual. Their literature was of the "You can if you think you can" type, anecdotal and evangelistic. Magazines were, and still are, too full of advertisements for books which will develop personality (or will power, or magnetism, or purposeful living or popularity) in fifteen minutes a day. The recent success of the "how to win friends" type of book indicates that there is still a large enough number of naive and uncritical individuals to warrant publication of psychological mythology.

More recently the scientific psychologist, the educator, and the trained sociologist have entered the field. A little order and definition is being brought into a difficult and discursive field. Important differences of opinion are apparent which is natural in a new field but acceptable definitions of personality and workable conceptions of traits are beginning to appear. A good deal is known about the development of desirable traits and the elimination of undesirable ones. A careful, critical, documented, experimental literature is emerging.

The volume here reviewed falls in the first class above. It is well written, interesting to read, full of intriguing tales and anecdotes. It is unorganized, undocumented, without either bibliography or index. There are few footnotes though a few standard references are mentioned. Personality is nowhere competently defined, no organized view is presented. The treatment consists largely of the author's belief and experiences. All the natural errors of anecdotal writing appear: negative cases and failures are nowhere mentioned nor analysed; predictions nearly always come true; brands are saved from the burning through maxims or timely anecdotes in the nick of time; naive *non sequiturs* and *ex post facto* reasoning abound. The entire treatment would be valueless to trained workers in the field, if it would not in fact antagonize them. Notwithstanding the obvious weaknesses which are inevitable in this type of presentation, the materials are, as noted above interesting reading. This together with the concrete human interest stories would make the book of some value to parents and to very young untrained teachers. Individuals who are wholly unaware of the organized structure of personality and who are for a time at least concerned with immediate situations will be aided by the optimistic view and specific advice given. Later they can progress to more valid and systematic discussions.

W. H. BURTON
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PARTRIDGE, E. DEALTON. *Social Psychology of Adolescence* (New York: Prentice-Hall, Inc., 1938), pp. xv + 361. $2.75.

"Modern society creates its own adolescent problem." This is the thesis of Professor Partridge's survey of adolescence, with emphasis on the psychology of social relationships.

While adapted to class use the book is addressed to all who work with adolescents. Its purpose is to aid in "understanding the conduct of youth." Artificial social restrictions, not innate tendencies, create a stress and strain period, leading to conflicts and maladjustments. The author's method is primarily interpretative. Explanations of adolescent behavior, always deriving from the conditions imposed by society, take account of innate factors, learning processes, and the nature of social groups. The family, the community, informal groups and group leaders are described as the significant factors in adjustment. The influence of Gestalt psychology is affirmed; the analytical method is consequently rejected.

Five of the fourteen chapters deal with problems of courtship and marriage, leisure time, education, delinquency, and (in final summary) the social approach to behavior difficulties.

Many amateur workers with adolescents will wish the means of adapting motives might be made less vague. It is not inaccurate to say that the author attempts little more than to render behavior intelligible. "If one's persistent longings . . . can be identified we can go a long way toward explaining his behavior" (p. 233). While many factors influencing the youth's education are described the reader is left largely to his own council in determining methods of "inducing the individual to change his conception of himself."

The promise of "complete annotation" is hardly realized; nor are "the many studies being made each year" at all adequately brought down to date. (Dimock's 1937 report is cited but once). Still, all told, a large number of the more important studies are summarized and documented.

To those unfamiliar with literature on adolescent adjustment this treatment will

serve as a helpful introduction; to any who approach the problem from a legalistic point of view it will provide a wholesome emphasis on social responsibility for maladjustment. Teachers will find it valuable in supporting a social interpretation.

HAROLD S. TUTTLE
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BEAR, ROBERT M. *The Social Functions of Education* (New York: The Macmillan Company, 1937), pp. xiii + 434. $2.25.

For arrangement of topics, balance of material, and selection of reading references it would be difficult to find a more ideal introduction to educational sociology.

Three chapters discuss the significance of education in making biologic man into a social person. Eight more relate education to the major social institutions which stabilize civilization, stressing chiefly the family, the community, industry, and religion. Social change, with a faint hint of possible progress, is discussed in the three final chapters.

Generous reference is made to objective studies of social phenomena; still larger dependence is placed on sumamries of interpretations offered by leading social thinkers. Thorough scholarship is evident in every unit. The student who attentively reads these fourteen chapters will be able with considerable confidence to discuss the social functions of education.

Whether he will be ready as confidently to assume responsibility for training socially efficient citizens is a little less certain. At least, faintest praise will come from those teachers who wish their pupils to emerge from such a study with surer criteria of social good and greater zeal to change the schools from knowledge venders to socializing forces.

HAROLD S. TUTTLE
College of the City of New York

MCFARLAND, MARGARET B. *Relationships between Young Sisters as Revealed in Their Overt Responses.* Child Development Monographs, No. 23 (New York: Bureau of Publications, Teachers College, Columbia University, 1938), pp. xi + 230. $3.50.

The subjects of this study are twenty-two pairs of sisters ranging in age from one year four months to six years nine months. The two members of each sister pair were observed simultaneously for a total of two hundred and thirty-five minutes. The total time represents five observational periods, three carried out under ordinary home conditions and two in situations devised and controlled by the investigator. Approximately half of the sister pairs were living in a city environment and half in a rural or village environment. Observational records, timed in thirty-second intervals, furnish the basic material.

From the observational records the total amount of social interaction and parallel activity was determined. Social interaction is sub-divided into the following categories: imaginative play, physical play, coöperative activity, sharing and conflict. To reveal further the nature of the interrelationships the responses are also analyzed in terms of such categories as direction, submission, resistance, imitation, rivalry, sympathy, protection, helping, giving and lending, and affection.

For the total group of twenty-two pairs the time spent in social interaction varies from 24 percent of the observation time to 66 percent. The correlation (rank difference) between the amount of social interaction and C.A. with M.A. partialed out is .25; between social interaction and M.A. with C.A. partialed out, .47. The correlation of mental age of older sister with amount of imaginative response is .72. The correlation of mental age of

younger sister with imaginative interaction is .44.

Conflicts are reported in from 4 to 22 percent of the social interaction time. No consistent tendency for older or younger sisters to initiate or win in conflict situations is noted. Responses of rivalry—62 in number—do not seem to indicate a generalized attitude which carries over into all behavior of one child toward the other but seems to be related more to the characteristics of the immediate situation.

There is a tendency for the older sister (considering either mental or chronological age) to direct the younger. The wide variability however is indicated by the direction scores of two younger sisters which exceed those of the older sisters.

Similar data are given for sympathetic responses, protective responses, helping, giving and lending, and affection. In all of the data considerable variation appears.

The study is a very extended and detailed analysis of what took place in the interaction between the sister pairs under the particular conditions obtaining at the time the observations were made. Data relative to the reliability of the time sampling and reliability of analyses are given. The strength of the study lies in the detailed picture it gives of the social interaction between sister pairs. But the study tends to stop too soon. It would be helpful to know how the responses are related to the various aspects of development of each individual at the moment. Also what are the *effects* of various types of interaction? Perhaps these are questions for future inquiry.

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RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to A. S. Barr, University of Wisconsin, Madison, Wisconsin.

BULLETINS

AMBERG, EMIL. *Some Remarks on the Experimental Psychology of the Kraepelin School,* Reprinted from *The Journal of the Michigan State Medical Society,* January, 1939. 8 pp.

The author discusses some of the main factors which dominated some of the work of Kraepelin and lists some methods used by him and his pupils.

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION. *Research on the Foundations of American Education* (Washington: American Educational Research Association, May, 1939), 215 pp.

This bulletin is devoted to an official report of the 1939 meeting of the American Educational Research Association, a Department of the National Education Association, which was held at Cleveland, Ohio, February 25 to March 1, 1939.

BADGER, HENRY G., KELLY, FREDERICK J., and GREENLEAF, WALTER J. *Statistics of Higher Education,* 1935-36, Bulletin 1937, No. 2, Office of Education, United States Department of the Interior (Washington: United States Government Printing Office, 1938), 351 pp.

This bulletin is chapter IV of Volume II of the biennial survey of education in the United States for the period 1934-36 and is concerned with a survey of higher education in the United States for 1935-36.

COLE, ROBERT C. *An Evaluation of the Vocational Guidance Program in the Worcester Boys' Club* (Worcester, Mass.: Educational and Vocational Guidance Department, 1939), 98 pp. Mimeographed.

The purpose of this bulletin is to report the evaluation of the guidance service of the Worcester Boys' Club, which serves 7,350 boys who have limited advantages in life.

CHARTERS, W. W. (editor) *Educational Research Bulletin,* XVIII (Columbus: School of Education, Ohio State University, May 3, 1939), 27 pp.

This issue of the bulletin contains articles on an evening class experiment, effect of a time interval on words known, a point of view for remedial reading, and activity analysis.

DOUGLAS, LLOYD V., and SKAR, R. O. *A Survey of Commerical Education in the Public Schools of Iowa,* Bulletin of the Iowa State Teachers College, Research Report No. 34 (Cedar Falls: Bureau of Research, Iowa State Teachers College, March 16, 1939), 20 pp.

On the basis of information supplied by the administrators of 523 Iowa high schools and by teachers of commercial subjects in these schools, the authors studied the relative importance of commercial work, the plans to add or drop commercial subjects in the future, vocational objectives, equipment, preparation

of teachers, subject combinations taught, length of service, and variations due to size of school; and conclude, among other statements, that teacher college students majoring in social science, English, and especially mathematics, should consider commercial education in choosing minor fields of preparation.

GRUELLE, ORIE P. *State Insurance of Public School Property in Kentucky*, Bulletin of the Bureau of School Service, College of Education, University of Kentucky, Vol. XI, No. 3 (Lexington: University of Kentucky, March, 1939), 136 pp.

The author discusses the problem of state insurance, legal status of insurance on public school property in Kentucky, existing state insurance laws, the desirability of state insurance of public school property and offers a proposed program of state insurance for the state of Kentucky.

HAYS, WILL H. *Enlarging Scope of the Screen*, Annual Report to the Motion Picture Producers and Distributors of America (New York: 28 West 44th Street, 1939), 26 pp.

This bulletin, the President's report to the Motion Picture Producers and Distributors of America, Inc., emphasizes the enlargement of the scope of screen entertainment due to improved dramatic technique and higher standards of appreciation which result in the screen becoming more and more socially and educationally important.

HOLY, T. C. *Comparison of Costs per Pupil in Average Daily Attendance in Ohio County School Districts from July 1, 1937 to June 30, 1938* (Columbus: Bureau of Educational Research, Ohio State University, May, 1939), 10 pp. Mimeographed.

Information on per pupil costs in the county school districts for the eighty-eight counties of Ohio for the school year 1937-38 is given.

JONES, HAROLD E., and OTHERS. "Mental and Physical Development," *Review of Educational Research*, IX (Washington: American Educational Research Association, February, 1939), 141 pp.

This issue of the Review consists for the most part of a review of investigations published between July, 1935 and July, 1938 with reference to: development of motor functions and mental abilities in infancy, from two to twelve years, and in adolescence, physical growth, birth to maturity, technics of research in physical growth and anthropometry, relationships in physical and mental development, and physiological factors and mental development. Bibliography.

MCCRACKEN, CHARLES C. *A Survey of Student Personnel Services in Fifty Colleges Affiliated with the Board of Christian Education of the Presbyterian Church in the United States of America* (Philadelphia: Charles C. McCracken, 822 Witherspoon Building, 1939), 51 pp. Mimeographed.

The first half of a study made in an effort to discover what is being done in the field of guidance in colleges affiliated with the Board of Christian Education of the Presbyterian Church in the U. S. A. is presented in this bulletin under the title "Pre-College Guidance" and is concerned particularly with the transition from high school to college.

MEAD, A. R., and OTHERS. *Using the Textbook Effectively: A Manual for Florida Teachers*, Bulletin No. 3 of the Educational Research, University of Florida (Gainesville: Bureau of Educational Research, University of Florida, 1939), 20 pp. Mimeographed.

This bulletin is intended as a manual for Florida teachers, and offers discussions of textbook materials in relation to objectives of learning: skills and meanings, attitudes, problem solving abilities; utilizing learner's previous experience, understanding the purposes for which a textbook has been written, the place of the textbook in a progressive program, and general suggestions.

OELLERICH, S. A., and OTHERS. *Report of the Research Committee of the Wisconsin Elementary Principals' Association: The Status of the Elementary School Principalship in Wisconsin* (Madison: Wisconsin Elementary Principals' Association, 1939), 24 pp. Mimeographed.

This bulletin offers compiled information collected by means of a questionnaire to elementary school principals of Wisconsin relative to the status of the elementary school principalship in that state and is designed to cover the following points: school classification, school organization, professional training, personal and economic factors, and suggestions or comments.

SEIPT, IRENE S., and OTHERS. "The Challenge of Progressive Education," *Proceedings of the Fourth Conference on Education and the Exceptional Child of the Child Research Clinic of the Woods School* (Langhorne, Pa.: The Woods School, May, 1938), 69 pp.

This bulletin gives the proceedings of the fourth conference on Education and the Exceptional Child of the Child Research Clinic at the Woods School, a private school for exceptional children at Langhorne, Pennsylvania.

SIEMENS, CORNELIUS HENRY. *Programme of the Final Examination for the Degree of Doctor of Philosophy* (Berkeley: University of California, 1939), 4 pp.

This bulletin presents the program for the final examination for the doctorate and offers a summary of the author's dissertation which is concerned with the prognosis of the achievement of engineering students.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

HOLLINGWORTH, LETA S. "What We Know about the Early Selection and Training of Leaders," *Teachers College Record*, XL (April, 1939), pp. 575-592.

The author discusses early selection and training of leaders and emphasizes the intellectual and emotional education as two of the more important concepts to be considered.

LLOYD, WILMA. "The Supervisor's Part in the Educative Process," *Educational Method*, XVIII (May, 1939), pp. 389-393.

This article is concerned with the role of the supervisor in the educative process when learning is considered as being, essentially and fundamentally, a personal thing.

CURRICULUM CONSTRUCTION

MACKENZIE, GORDON N. "Core-Curriculum Developments in California; I: Innovating Schools," *The School Review*, XLVII (May, 1939), pp. 337-351.

The author reports an intensive study of the core-curriculums of five schools which was concerned with the pattern of the required program, teachers' purposes, nature of the content, variety of learning experiences, evaluation, materials of instruction, continuity and sequence, and the role of the teacher.

MACKENZIE, GORDON N. "Core-Curriculum Developments in California, II:

The General Situation," *The School Review*, XLVII (June, 1939), pp. 439-453.

The author reports a questionnaire investigation of the core curriculums in 283 secondary schools of California and finds little evidence that any large proportion of these schools had well-planned core curriculums for the attainment of the purposes of education in a democracy as these purposes have been outlined, also that the arrangement of courses and their lack of sequence indicate a desire to give pupils contact with certain blocks of subject matter rather than to provide a developmental program which would result in a certain kind of individual.

POOLEY, ROBERT C. "Varied Patterns of Approach in the Teaching of Literature," *The English Journal*, XXVIII (May, 1939), pp. 342-353.

The author discusses organization in the teaching of literature by: types, chronology, themes, sets of classics, experiences, integration and correlation, free reading, and miscellaneous patterns; and offers a guide to the selection of a pattern which appears to be determined by the objectives of the course.

WITTY, PAUL. "Reading, Remedial Reading and General Education," *Educational Method*, XVIII (May, 1939), pp. 425-431.

The conclusion that significant progress is being made in the teaching of reading and literature, causing new responsibility to rest on the teacher, is made by the author after a survey of the newer devices in this field.

PSYCHOLOGY OF LEARNING AND TEACHING

FREEMAN, FRANK N., and BUSWELL, G. T. "Selected References on Educational Psychology," *The School Review*, XLVII (May, 1939), pp. 381-386.

Thirty-eight references on educational psychology are divided into the following classifications: general and theoretical discussions, child development, mental measurement, learning, and personality, and adjustment.

JACOBSON, P. B. "Some Ways to Develop Better Readers in the High School," *The School Review*, XLVII (May, 1939), pp. 352-362.

The author discusses the informal experiments and discussions participated in by a commitee of teachers in the Laboratory Schools of the University of Chicago when studying the relation of vocabulary and well-motivated assignments to reading.

SHERMAN, EDITH. "An Experimental Investigation of the Modifiability of Slant in the Handwriting of Elementary School Pupils," *Pittsburgh Schools*, XIII (March-April, 1939), pp. 103-121.

On the basis of a study designed to investigate the "practice only" and the "oral analysis" methods of teaching handwriting data gathered from 446 children in the 5B grade lead the author to conclude that, as measured by the protractor used in the study, children in the "oral analysis" group showed consistent gains from sample one to sample two indicating an improvement measurable by the instrument used.

PETTY, MARY CLARE. "An Experimental Study of Certain Factors Influencing Reading Readiness," *The Journal of Educational Psychology*, XXX (March, 1939), pp. 215-230.

The author reports an experimental study of certain factors influencing reading readiness based upon data from five tests administered to one hundred-two low first grade pupils and concludes that while

there is a positive relation of all the factors considered to reading readiness, none of the correlations determined are high enough to be accurate in individual prediction, and that the explanation lies in home, social, health, disciplinary, or personality problems.

PUPIL GUIDANCE, DEVELOPMENT, AND WELFARE

EMBREE, ROYAL B. "The Cumulative-Record Card as an Aid to Research," *The School Review*, XLVII (June, 1939), pp. 425-430.

The author discusses the cumulative-record card which is in use at the University of Minnesota High School, and although it is built around the particular characteristics of that school he feels that it has been of definite value to both guidance and research activity.

LUCIO, WILLIAM H., and MEAD, CYRUS D. "An Investigation of Children's Preferences for Modern Pictures," *The Elementary School Journal*, XXXIX (May, 1939), pp. 678-689.

On the basis of data gathered in an effort to discover what modern pictures children in elementary school like and the reasons for their choices, the authors conclude that, so far as the data of this study show, the environmental status and the locality in which children live seem to have little to do with the pictures that the children choose, and the reason most often given for liking a picture is the artist's use of color.

STUDEBAKER, JOHN W. "The Occupational Information and Guidance Service: A Report of Progress," *Occupations*, XVII (April, 1939), pp. 586-593.

The author discusses the progress and achievement attained within the space of a few months by the new and growing division of the United States Office of Education.

WITTY, PAUL, and KOPEL, DAVID. "The Dreams and Wishes of Elementary-School Children," *The Journal of Educational Psychology*, XXX (March, 1939), pp. 199-205.

The authors conclude, on the basis of data gathered on dreams and wishes of elementary school children, that the significance and place of this topic in child study are frequently overemphasized.

STATISTICS, MEASUREMENTS, AND SCIENTIFIC TECHNIQUES

KVARACEUS, W. C: "Intelligence Testing in the First Grade," *Elementary School Journal*, XXXIX (May, 1939), pp. 690-691.

The author offers an explanation of the wide variance in mental test results of the first grade enrollments in a large school system for two successive years.

SPRAGUE, JAMES B. "Diagnostic Testing to Improve Mathematical Ability in Grade X," *The School Review*, XLVII (June, 1939), pp. 431-438.

The object of the experiment reported was to determine the value of teacher-made diagnostic tests in planning remedial instruction for improvement of the mathematical ability to tenth-grade pupils, and on the basis of comparisons, the author concludes that from an administrative point of view, diagnostic testing is valuable because it makes possible the rapid discovery of specific individual and group difficulties.

SWINEFORD, FRANCES, and HOLZINGER, Karl J. "Selected References on Statistics, The Theory of Test Construction, and Factor Analysis," *School Review*, XLVII (June, 1939), pp. 459-466.

This bibliography includes 59 references in these fields selected from issues of educational and psychological journals from March, 1938, to February, 1939, inclusive.

NEW TESTS

Chapter Tests, by S. L. Pressey. New York: Harper and Brothers, Publishers, 1939.

This series of revised tests, which are intended to accompany the author's book, *Psychology and the New Education,* consist of forms A and B for each of the fifteen chapters, and may be used as pre- or final tests or as a basis for review.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Carter V. Good, Teachers College, University of Cincinnati, Cincinnati, Ohio.

SELECTED BIBLIOGRAPHY ON THE METHODOLOGY OF EDUCATIONAL RESEARCH AND RELATED PROBLEMS, 1938-1939

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This is the tenth annual bibliography on the methodology or techniques of educational research to be published in the *Journal of Educational Research*. It covers approximately the period from July 1, 1938, to July 1, 1939. The earlier annual bibliographies, beginning in October, 1930, may be found in either the September or October number of the *Journal*.

The first heading, concerned with problems and trends, includes two references of more than ordinary significance in the areas of population research (Whelpton) and teacher education (*Major Issues in Teacher Education*).

Under the second division, in addition to the usual bibliographical services from a variety of sources, attention should be directed to bibliographies or summaries in the following fields: science instruction (Curtis), courses of study (Leary), youth (Menefee and Chambers), *Emotion and the Educative Process* (Prescott), school surveys (Smith and O'Dell), *Child Development and the Curriculum* (Washburne and others), reports of deliberative committees (Educational Policies Commission), and *Implications of Research for the Classroom Teacher* (American Educational Research Association and Department of Classroom Teachers).

A wide range of books on research methods again has been made available within the course of a year, as listed under the third heading of the bibliography: initiating research (Confrey), resources of Southern libraries (Downs), history (Adams, Cate and Anderson, Firth, Kraus, Mandelbaum, Nevins, Shotwell, Williams), history of science (Ornstein, Sarton, Wolf), measurement (Buros, Freeman, Hildreth, McCall, Nelson, Smith, South, Tiegs, Webb and Shotwell), statistics (Fritz, Goulden, Kurtz and Edgerton, Rider, Treloar), experimental psychology (Harrower, Tinker and Baker), child study (Gesell and others, Greulich and others), social research and case work (Dixon and Browning, Durkheim, Ellwood, Elmer, Lowry, Lieberman and others, Rogers, Young), and logic (Dewey).

Under the fourth division, the work on evaluation (Eells) of the Coöperative Study of Secondary School Standards is of general interest and significance, as is likewise true of the publication on research of the National Resources Committee.

The last heading includes analytical discussions of philanthropy and higher education (Hollis) and student personnel work (Lloyd-Jones and Smith).

I. Problems, Issues, and Trends: Needed Research

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